FM-ONE

Flash memory **MCU** PROGRAMMER For the Operation Procedures

Hokuto Electronic

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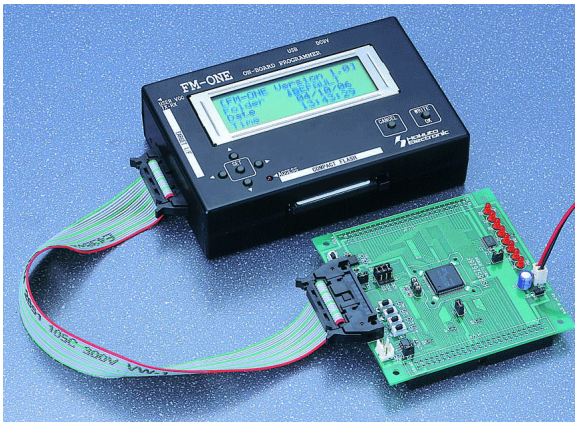


株式会社北斗電子 REV.2.0.0.0
Hokuto Denshi Co; ltd

IMPORTANT

Do not use the FM-ONE before reading this user's manual

◆MATTERS ON SAFETY

●Make sure that you fully understood this user's manual, before using the FM-ONE. Reading this manual is the responsibility of the FM-ONE users to fully understand all the matters.

●This user's manual must be kept by the holder and when there is anything unclear about the use of the product, read it again and again before you fully understand.

●**FM-ONE** is made up of a programming writer which rewrites programs to a Flash ROM built-in microcomputer made by Renesas Electronics Corp. The **FM-ONE** is not to be used for any other purpose other than what is specified in this manual.

●Designs, functions and specifications of the **FM-ONE** are subject to change without notice with a view to enhancement of performance or safety. Some diagrams in this manual may sometimes differ from the product.

●This manual and the product are protected by copyright and the industrial property right, and all rights are the property of HokutoDenshi Co., Ltd. All rights are reserved.

●HokutoDenshi always reviews and takes due measures for safety of users. We are, however, unable to foresee every potential hazard and improper use. Also, all cautions are not always described in this manual, and, therefore, understanding and judgment are the responsibility of the users for the interest of proper and safety use of the product.

WARNINGS

Failure to adhere to the following warnings may result in possible heat, smoke and fire damages to the **FM-ONE** and surrounding systems.

1. Don't disconnect and don't reconnect power cables while power is on.
2. Don't remove and don't replace any circuit while power is on.
3. Don't use power voltages other than what is specified in circuit diagram.
4. Be sure to use the correct connector cables when connecting between the **FM-ONE,** MCU and peripheral systems.

LIMITED GUARANTEE

HokutoDenshi Co., Ltd. guarantees that the **FM-ONE** can be used by the usage described in this manual by HokutoDenshi Co., Ltd. and guarantees that the **FM-ONE** has been produced correctly and is free of any defects in materials and finish of the product. The **FM-ONE** is guaranteed for 1 year after purchase.

This guarantee is not valid in the following cases:

1. Fires, earthquakes, floods, accidents caused by a third party.
2. Premeditation, error or omission, improper use and/or in an improper environment.
3. The product has been altered in any way or tampered with.
4. The method of use has resulted in damage to the product, or a defect with the product.

WHAT THIS GUARANTEE DOES NOT INCLUDE

HokutoDenshi Co., Ltd. guarantees the product only when the product is used correctly as described in this manual. This guarantee is not valid of the product misused for purposes other than that is specified in this manual. The guarantee is valid only for the materials used to construct the product.

HokutoDenshi Co., Ltd. accepts no responsibility for whatever costs associated directly (or indirectly) with damaged (or faulty) goods. This guarantee is valid for only the original purchaser of the product.

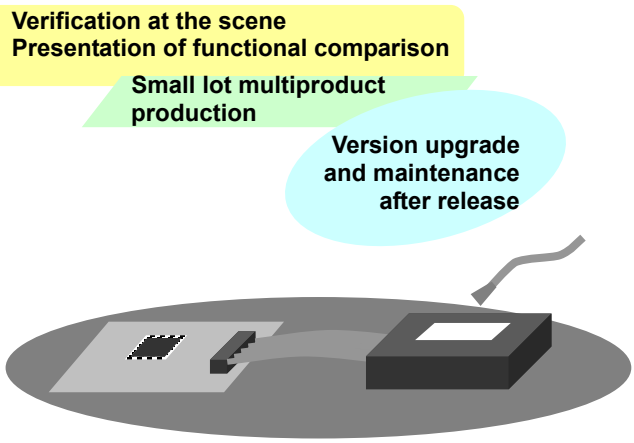
For the damages arose cumulatively, when the guarantee explicitly covers the damages, the guarantee is limited to received value of the product price no matter what the reasonsare.

Any application for retailing the product by a third party can not be accepted. The purchaser of the product assumes all responsibility after the purchase of **FM-ONE.**

Prices of the product and its attachments are subject to change without notice.

ON-BOARD PROGRAMMER

Our **on-board programmer,** when mounted, readily downloads user programs to the Flash built-in microcomputer made by Renesas Electronics Corp. When mounted, the on-board programmer is able to not only examine the system but also rewrite user programs even after the hardware itself is completed. These advantages can be extensively used from development to maintenance of various programs. Our product supports users' efficient production in various ways such as shortening of the duration of development, saving the effort of providing a verification environment, and reduction of inventory goods.


Verification at the scene
Presentation of functional comparison
Small lot multiproduct production
Version upgrade and maintenance after release

ON-BOARD PROGRAMMER FEATURES

- While writing, an automatic control function in boot mode lets MCU board write in an operation mode.
- This programmer is best for the development of writing control programs, save the need for validation, and can be developed in a short duration.
- The target interface can be used together with our on-board programmer or independently depending on circumstances.

FM-ONE FUTURES

FM-ONE is characterized by an easy handling of the user programs with CF (compact flash). We have made efforts in improving for convinience. For example, those functions are left unchanged that have been well received with the existing on-board programmer FLASH2 and FLASH MATE5V1.

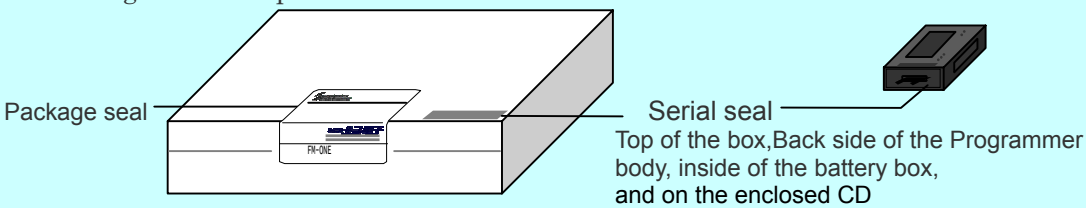
- ✓ The system, serving as a USB storage device, saves project files in the CF.
- ✓ With a 20-letter x4-line LCD as well as a switch, this system makes possible to write without a PC.
- ✓ Power is supplied to the main body by three methods: a USB Bus power, an AC adapter, and nickel metal-hydride batteries. *Two size AA batteries

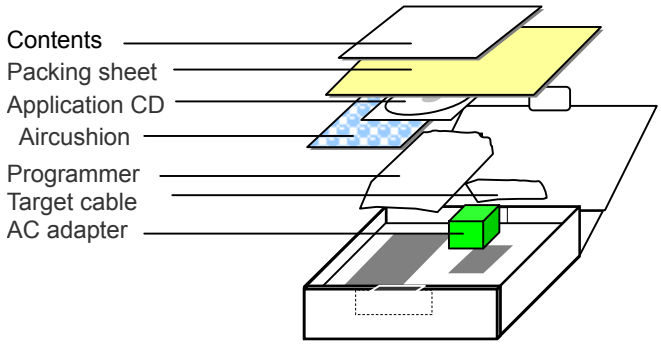
SPECIFICATIONS

【Package Style】

Corrugated carton Size…**212×277×62mm**

Package seal and products serial number





* The compact flash is put on the programmer body.

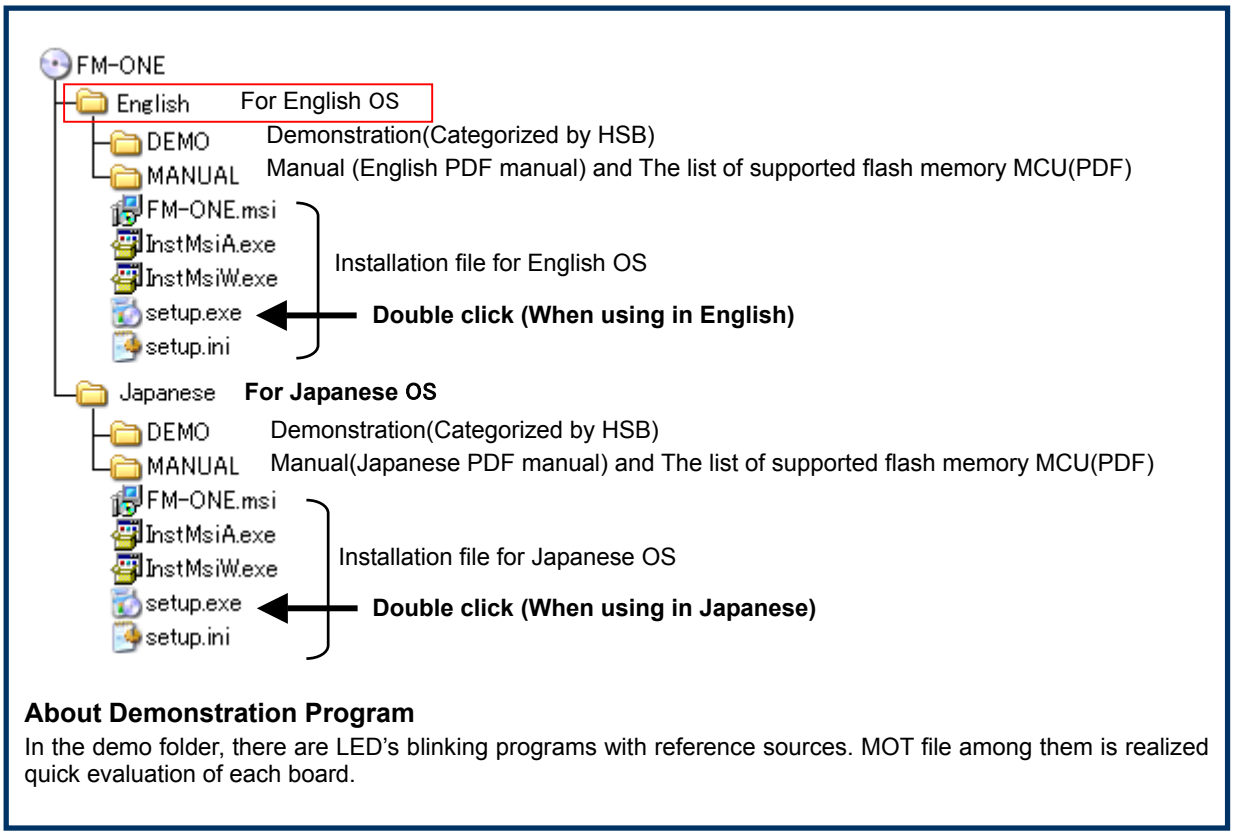
【Product and contained accessories】

On-board programmer FM-ONE body..... one
Software (attached CD)..... one
Compact flash..... one
AC adapter..... one
USB connection cable (20P Flat cable 30cm)one
User's manual: one operation edition and one material edition

＊Instruction manual (how to use) and Information book is supposed to be recorded in an attached CD from Mar.05.2008.

* A USB cable can be bought on the market.

【The provided CD includes】



About Demonstration Program

In the demo folder, there are LED's blinking programs with reference sources. MOT file among them is realized quick evaluation of each board.

【Brief specifications of the main body】

Writable MCU: Flash On-chip Memory made by Renesas Electronics Corp of single power supply and H8SX/1650, H8SX/1651 Expternal memory
*MCU that appears in this document is the flash memory edition.(H8SX/1650, H8SX/1651 group is excluded.)

Writing mode: On-board programming Boot mode

Writing voltage in the target: 5V or 3.3V (voltage span for UserVcc:2.5~5.5V Consumption current: approx. 10mA)

Writable file format: Motorola file (S format file) extension .MOT,
Intel HEX file (HEX format file) extension .HEX

CF available: Attachment CF115－1G
Operation-checked CF: CF115-1G,CFS-64MX (I-O data Device Inc.)
SDCFB-32-801,SDCFB-64-801 (Sun Disk Corp.)
* Up to 10 projects in the amount of memory can be used.
CF Interface specification: accepts FAT12/FAT16, 3V, sector size 512, and less than 2GB.
*It's users' responsibility to use CF, whose operation is not checked by HokutoDenshi Co., Ltd.

Power supply: Attached AC100Vadapter, or two size AA nickel metal-hydride batteries
*The attached AC adapter is applicable in Japan.
DC+9V (DC+7V~+12V) Capacity: over 300mA, Jack: Centre minus (0V) ø5.5mm/2.0mm
Do not use any articles other than the attached items as they may damage the main body and MCU. Some expendables are sold separately.
*When using with batteries, It is recommended that nickel metal-hydride batteries be replaced every hour though they do not die out.
*No battery is provided with the main body.

Body case size: 89×134×36mm (excluding the pronged top)

Weight : 260g (excluding batteries)

【Specifications of FM－ONE Project File Maker】

Attached application: FM-ONE Project File Maker

Operation environment: Windows2000,XP,Vista,7 and 8.1. (Online writing is not available on Vista and 7.)
Japanese environment
*While using this application, don't use other applications.

PC Interface: USB port (Prepare a USB cable)

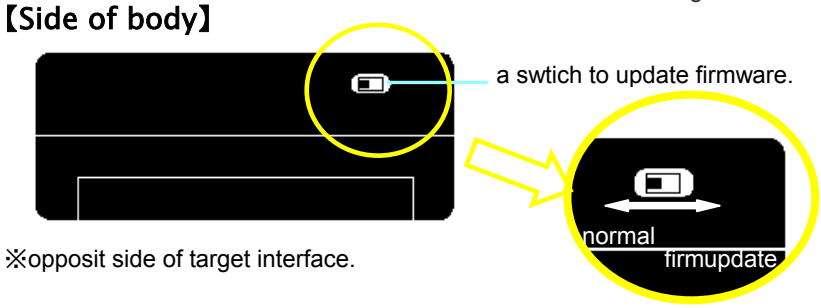
【Parts names】

▼Main body LED

CF access:
Don't remove the CF while light is on as it runs a risk of destroying saved data.

UserVcc･TX/RX access:
displays two-way communication between the main body and the target. Even when USER VCC is powered on and when the output of the target TXD shows "Low", LED remains "OFF."

【Side of body】



※opposit side of target interface.

Caution!

This switch should be operated only when the firmware needs to be updated.

The home position of this switch is left side. Do not operate this switch during the device is working or the device gets critical damage.

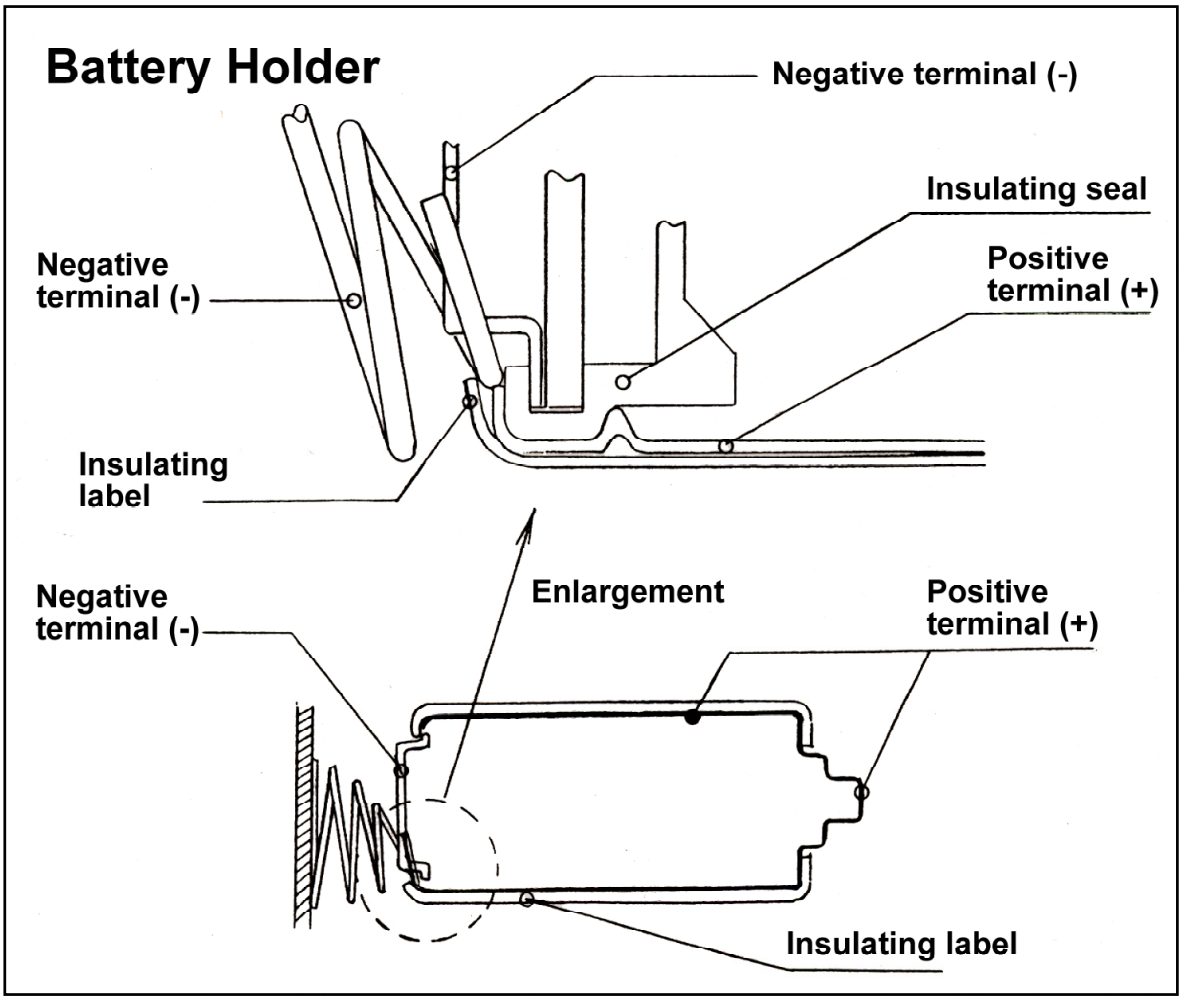
Battery Holder Guidance

Please read <Precaution> before placing the batteries into battery holder.

＜Precaution＞

Some of the alkaline batteries contain flexible insulating label to it. When placing that kind of batteries into the battery holder, negative terminal (-) of the battery holder could come into contact with positive terminal (+) inside of the flexible label as shown in the diagram below. It causes electrical short-circuit.

Please do not use the batteries described above. Electrical short-circuit may cause smoke and fire.



About some changes on display for upgrade

The display in LCD is changed as firmware's and hardware's upgrade as follows.(After Jan. 2009)

- "FM-ONE file manager" was displayed on top of the screen, but it turns into "FM-ONE SYSTEM".
- The voltage of batteries (power source of FM-ONE) is shown.(Refer to 3-2)

When power supply is turned on 【In Online/Offline operations】

- In starting, the display as follows disappears in a few seconds and it changes into the idling state.(1-2)
- "version xxxxx" means the version of firmware.

1-1 Old version

1-2 New version

On stand-by【In Online idling】

- "USB/DC" is shown on the screen when FM-ONE is connected to the PC with a USB cable.(2-2 A)

2-1 Old version

2-2 New version

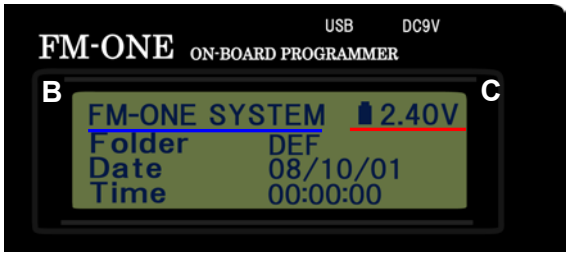
On stand-by【In Offline idling】

- The display of "Battery symbol" and "Voltage" appears in the screen when FM-ONE Starts by offline.(3-2 C)

※In case of using AC adapter, the "C" part of 3-2 becomes "USB/DC".

3-1 Old version

3-2 New version

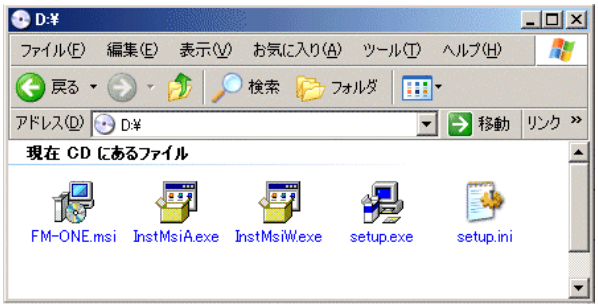


Preparation

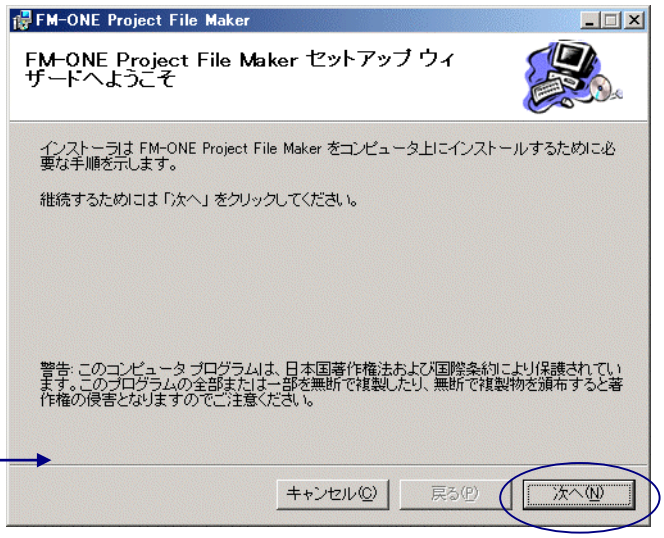
Installation of FM-ONE Project File Maker

＜Procedure of Installation＞

① Set the attached CD into the CD drive of PC, start up Explorer, and double click on the **setup.exe** from among the files in the CD drive.



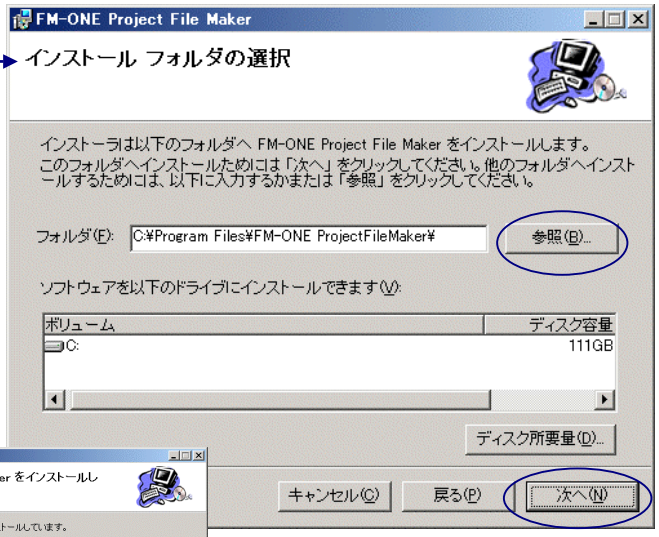
② The installer in the right diagram starts up. Confirm the instruction in the screen, and then click on "**次へ**" (next) .



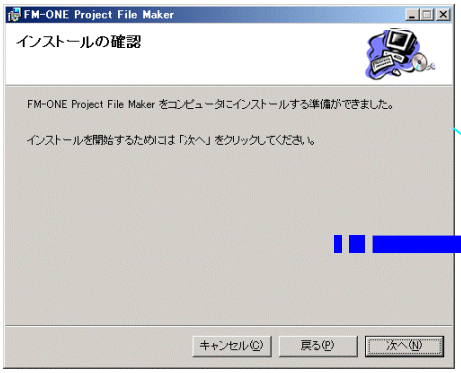
③ "The a to install FM-ONE Project File Maker" is displayed on the screen.

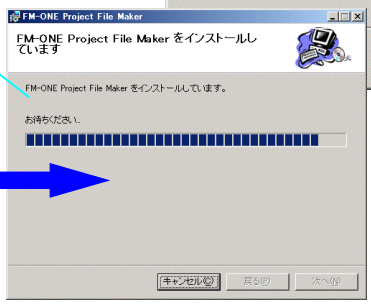
When a folder different from the one designated on the screen is to be selected, click on "**参照**" (REFERENCE) and select the desired folder according to the direction.

Leave the folder to install on the screen, and then click on "**次へ**" (next).



④ Message "Start installation" is displayed. Check the message and click on the indicated icon "Start installation," and the progress bar will appear and installation will start.



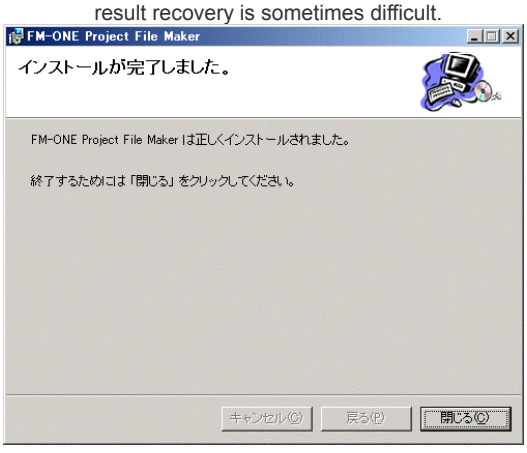


Cautions!

The way messages are displayed may differ from one PC another. For further information, refer to user's manual of Windows.

During installation, do not start other applications software if circumstances permit. If a required system file is being used, installation may not be perfected and as a result recovery is sometimes difficult.

⑤ "Installation is completed" will be displayed.
Select **"閉じる"**(close), and the installer will cease to function.
If a message urging "Reboot PC," appears, be sure to reboot your PC before starting up FM-ONE Project File Maker



⑥ When the procedure (①~⑤)is made properly, an executable file shortcut is produced both on the desktop and in HokutoDenshi Folder by the following order: start menu→all programs.

To uninstall, start up the installer again and click on **DELETE**.

＜**Sample programs**＞

Sample programs of our MCU board products included in the attached CD can be copied when necessary.

Target board

Prepare MCU-set board which is equipped with a specified write-in interface.
For the write-in interface and I/F circuit diagram of the interior FM－ONE, refer to attached “User’s Guide.”

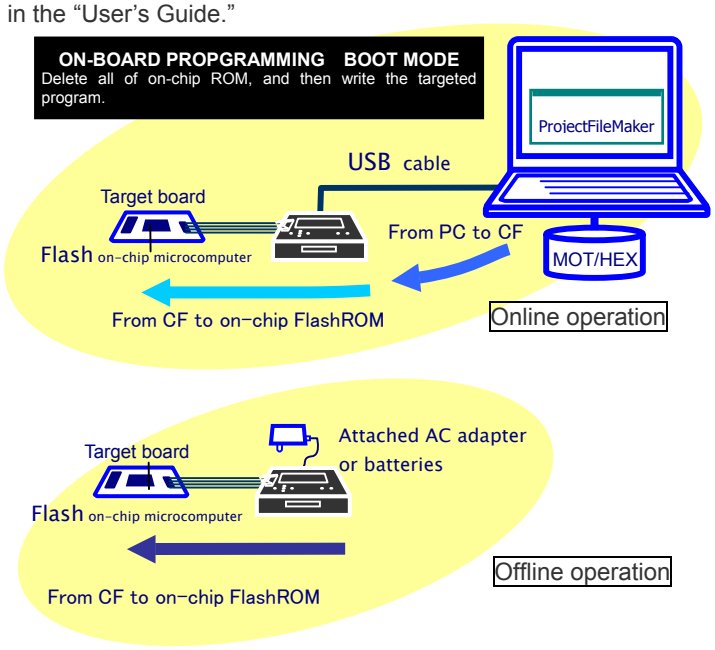
Connector and Cable

The connector model name and signal name are shown in the “User’s Guide.”

CONNECTION IMAGE

In using the FM-ONE, the target board, FM-ONE and PC must be connected as the diagram indicates, on the right.
Prepare a target board according to our reference circuit diagram, connect its write-in interface with the FM-ONE body with the target connection cable, and then insert CF (Compact flash) through CF insertion slot.

- To connect the FM-ONE body with PC, you must use a USB cable (not provided).
- Power is to be supplied to the FM-ONE body from a USB bus when PC is operated, or otherwise from the attached adapter.

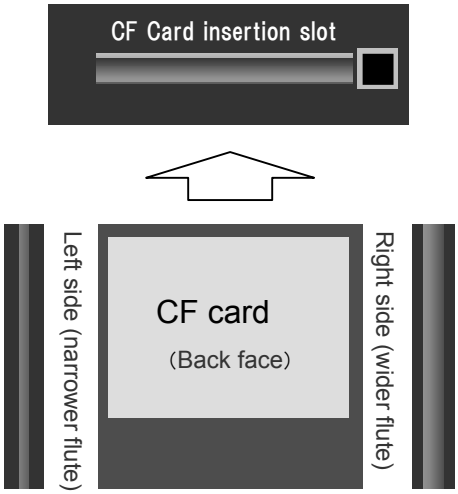


Cautions!

Insertion of CF

Insert CF with its back face upward.
A slot is on the CF side. Hold the CF card with the wider slot to the right against the FM-ONE and the narrower one to the left, and the back face will be upward.

Insert the CF card until you hear click so that the injection button will pop up.



※The card cannot be inserted with the front face upward. Improper insertion may damage the main body.

RECOGNITION OF USB DEVICE OF CF

CF inserted into the FM-ONE body is recognized as a USB storage by PC.

- Be sure to confirm if recognition is achieved properly when a USB cable is connected and CF is inserted.
- When a USB cable or CF is to be removed, be sure to cut off the USB device.

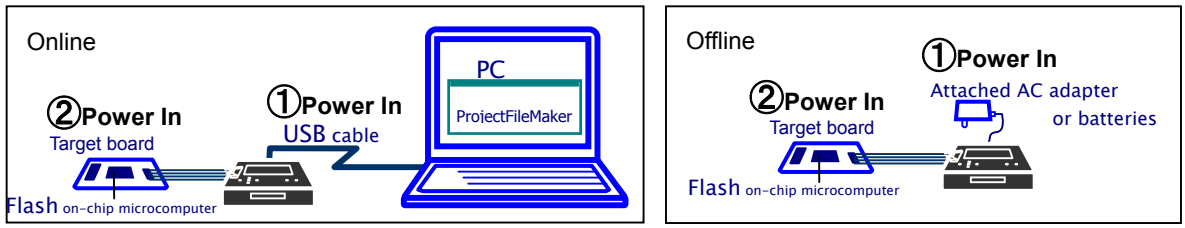
How to cut off USB device

Click on the removal icon in the task bar on the bottom-right of Windows, and then cut off the **USB device** according to the direction on the screen. Make sure if it is cut off, and then remove the CF or the USB cable. When “Disconnected USB” is shown on the body display, it imust be disconnected properly.
Connection and disconnection can be done properly when PC is not operating.

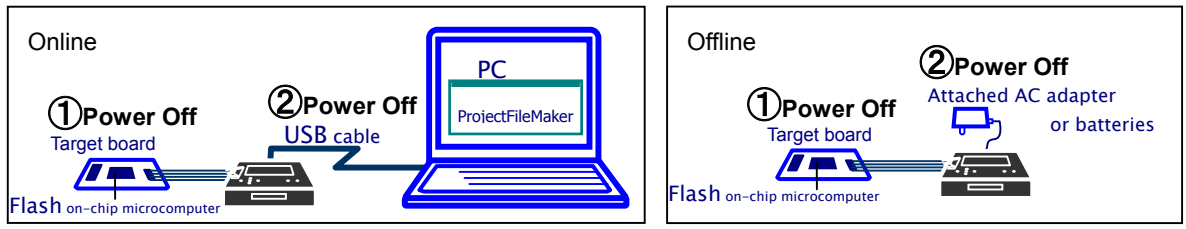
Order of Power Supply

When main body and the target board are powerd on and off, follow the orders below.

●Power ON:



●Power OFF:



Fundamental Operation Method

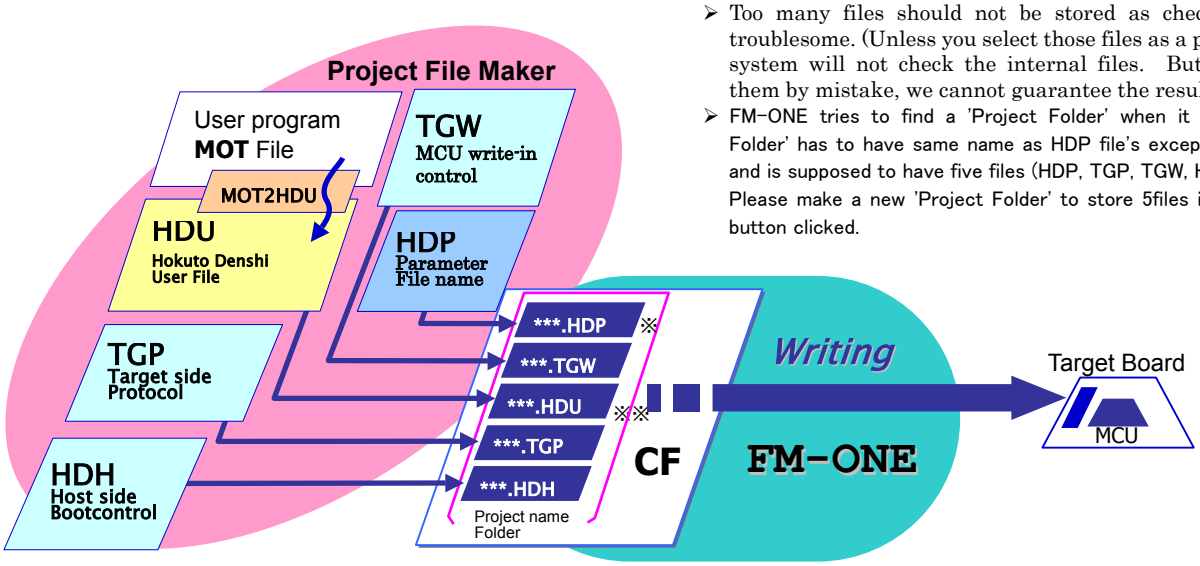
What is PROJECT FILE?

Besides selection of files or parameters, attached application FM-ONE Project File Maker produces the following five different files.

Project files to be produced

The number of files and folders that FM-ONE can detect is up to 10.

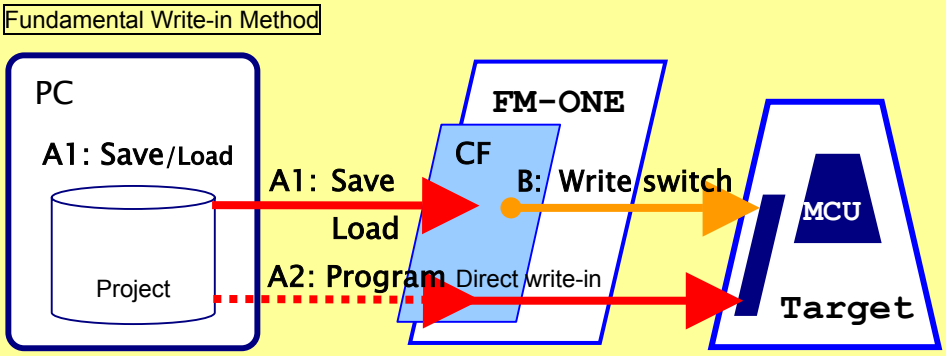
- When more than 10 files/folders are in the CF root, FM-ONE will randomly display 10 on the LCD depending on the number of the saved (Display order cannot be designated).
- Files other than the Project File may be saved, however, in order to avoid the trouble of confirming unnecessary files, it is recommend that such files be saved in a particular folder as circumstances permit.
- Too many files should not be stored as checking may be troublesome. (Unless you select those files as a project file, the system will not check the internal files. But if you select them by mistake, we cannot guarantee the results.)
- FM-ONE tries to find a 'Project Folder' when it works. 'Project Folder' has to have same name as HDP file's except the extension and is supposed to have five files (HDP, TGP, TGW, HDU and HDH) . Please make a new 'Project Folder' to store 5files in before 'Save' button clicked.



※ **Project name is written before .HDP** ※※ **MOT/HEX file name is written before .HDU.**

FM－ONE writes User Programs from project files saved in CF.

Writing can be started in two ways: one is done directly from FM－ONE Project File Maker, and the other is by operating the write switch of the FM－ONE body.



【Online】 With FM－ONE Project File Maker:

A1: Save/Load･･･ To produce project files into PC and CF, and to load them.

A2: Program･･･ To write-in the project files automatically produced

【Offline】 With the switch of the FM-ONE body

B: Write･･･ To write in project files saved in the CF by operating the switch of the FM-ONE body.

Save ･･･

To produce project files from selected files and parameters, and save them.

Load ･･･

To call projects that are already saved. It is possible to directly write what is loaded, or modify the contents and save them.

Program ･･･

To start writing projects with PC.

After a message “Start writing” is given, communication between PC and FM-ONE turns to an offline mode. When writing is finished, it returns to an online mode.

When user programs prepared with the MOT/HEX file format are to be used, the above five files must be prepared as a project using FM-ONE Project File Maker. Writing is not possible by putting MOT/HEX file alone in the CF.

Online operation: A1 and A2 and Offline operation B mentioned above will be described in the following page and later.

With FM-ONE Project File Maker【Online】

The operation of the FM-ONE Project File Maker is described.

Connection to the FM-ONE body or the target board is not always necessary.
Connect the system when necessary as the diagram right shows.

Prepare the user program in the MOT/HEX file format, and then start the installed FM-ONE Project File Maker. Refer to the following start-up direction:

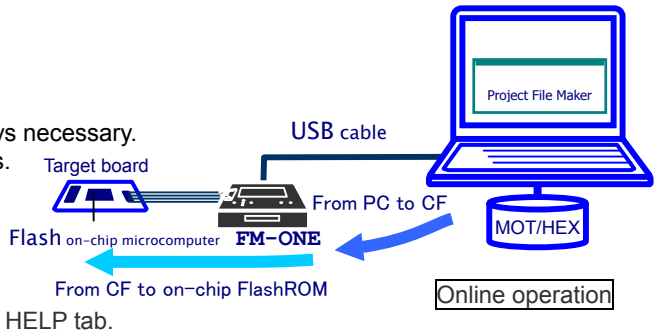
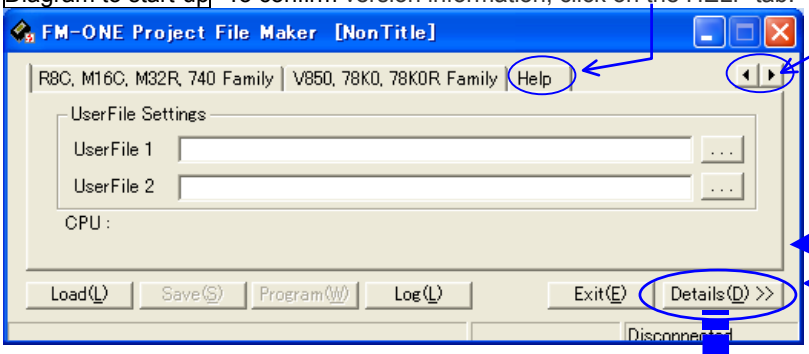


Diagram to start-up To confirm version information, click on the HELP tab.



The tab which hid can be displayed.

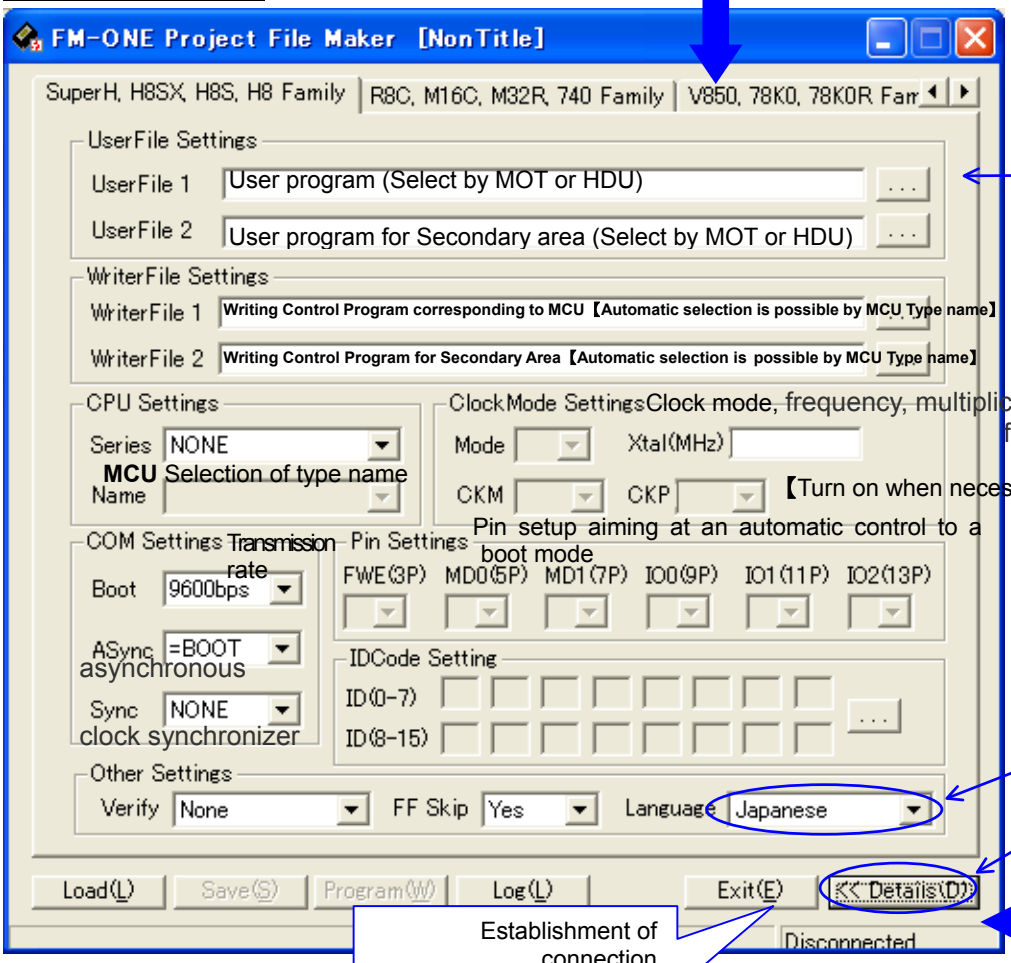
Double-click on the Icon of

FM-ONE Project File Maker.

Display a detailed setup diagram.

Operation screen starts with a compact screen hiding a detailed setup. To produce a project file, click on the Details key.

Details screen displayed



screen display button of file selection

Error message display Language alteration Japanese or English can be selected.

*Some descriptions are written only in Japanese.

To hide the detailed setup screen, click on the Details key again.

Connected to the body.

Establishment of connection

OK

A1: Save/Load

Select a file as well as a parameter as a project file to be **SAVED**.

As mentioned on the previous page, first of all, start FM-ONE Project File Maker to display a detailed setup screen.

①Selection of User Program

Select the prepared MOT/HEX file.

Click on the screen display button of file selection and then select from among files displayed on Windows.

▼ For User File 1, select a file for regular ROM areas, and for User File 2, select a file for secondary (in a specific MCU such as stacked modules or User boot mats.)

▼ Those selected files are converted into one project file and saved in a single HDP file.

▼ If selected files include an write-in address to an area other than on-chip ROM area good for the boot mode, a warning will appear.

②Selection of MCU type name

Select the target MCU from among type names.

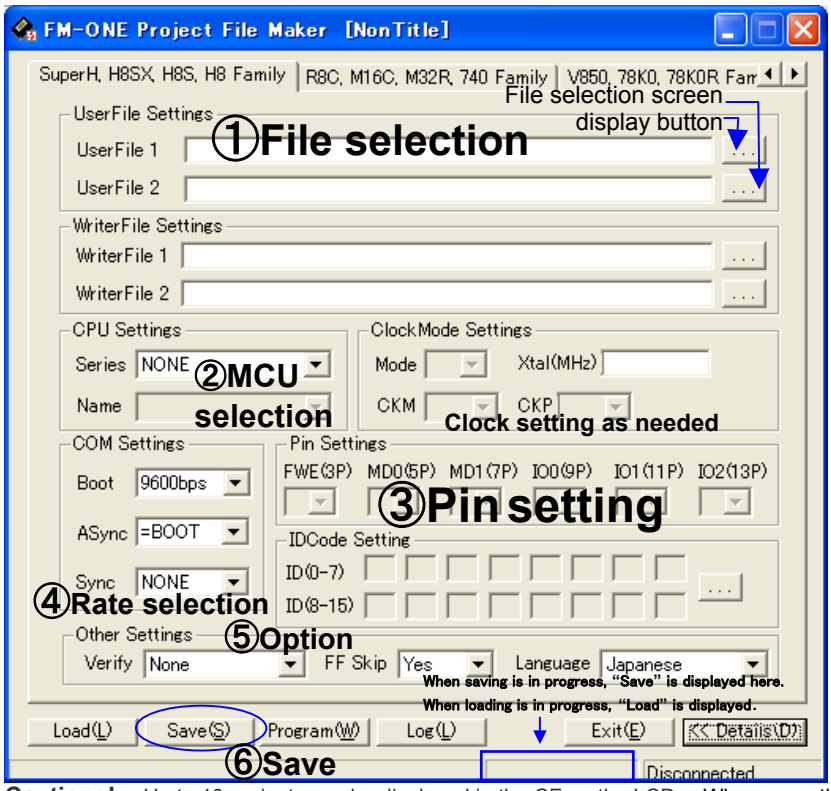
Make selection through two stages: from the group selection list to type name list.

▼ MCU on the list is a type name which can be available at the moment. New MCU is now under preparation. For further information, contact us.

▼ When necessary, the boxes of the right Clock Mode Setting turn into an active mode (white background) urging ENTER.

Mode…Clock Mode (Select from the pull-down list)
Xtal…Target Clock All MCU is indispensable.
(When saved in HDP, the frequency is rounded off to one decimal place.)

CKM…Main Clock multiplication factor
CKP…Sub Clock multiplication factor
※Select from among the pull-down list.



Cautions! Up to 10 projects can be displayed in the CF on the LCD. When more than 10 projects are in the CF, a display order cannot be designated. It is recommend that unused files be saved in a particular folder.

③Pin setup

While writing, the connected MCU pin is automatically controlled according to the intended set-up, High or Low. Writing in the target board in an operation mode is readily done.

▼ Various pins are merely output but not monitored and so writing is possible even when this function is not used. Compare the operation mode with the boot mode and connect them in the minimum frequency.

▼ Unconnected lines can be used selecting Hi-Z.

④Selection of Transmission Rate

Select a transmission rate between FM－ONE and Target MCU from among the pull-down list.

Boot…This rate is to be used by combining the target MCU at the time of Start writing. Select an appropriate rate corresponding to the target clock within a range specified by the target MCU.

▼ Setting value: 1200bps 2400bps 4800bps 9600bps 19200bps

Async…This is a rate of an asynchronous communication method when user program data are transmitted. Select a rate with a smaller serial communications error rate by Target Clock.

▼ Setting value:1200bps 2400bps 4800bps 9600bps 19200bps 38400bps 76800bps
*Setting values are displayed, larger than by the Boot selection.

Sync…This is a rate of a clock synchronized communication method, which is used when the user program data are transmitted. To use this rate, SCK signal must be connected to the Target Interface #19.

▼ Setting value: NONE (No need when unnecessary) 10K, 25K, 50k, 100K, 500K, 1M, 2M

⑤Options setting

Select from two options, verify and FF Skip.

▼ Verify…Apart from the one at the time of normal writing, after writing all the programs, the written in contents must be retrieved without ending the boot mode to verify. You can choose from Csum (comparison in terms of checksum values) and Byte (Comparison in terms of bytes).

▼ FF Skip…When all the sizes of a serial write are FF data, skip writing and optional verifying in terms of bytes.

* It is recommended to do Verify to enhance the reliability of the programming.

⑥Click on SAVE key

Now that all items to be selected are completed, click on **SAVE** key, and save the project names on the specified destination.

▼ Right project name…Save the project name in English one byte characters. ★1 On the specified destination, HDP (Hokuto Denshi Project) is saved in an extension form, and the same time, files are produced necessary for writing, which are stored and saved at the same place where HDP is. After it is saved and if it is to be written in the offline with the USB removed, be sure to match the folder name with the file name. Otherwise, a file name cannot be found on the LCD screen of the FM－ONE body.

▼ Destination to be saved…In Offline operations, be sure to save in the CF. It is only when 'Program' button is clicked that a new folder is made automaticaly. The new folder for the project files is not made automaticaly when they are saved with 'Save' button.

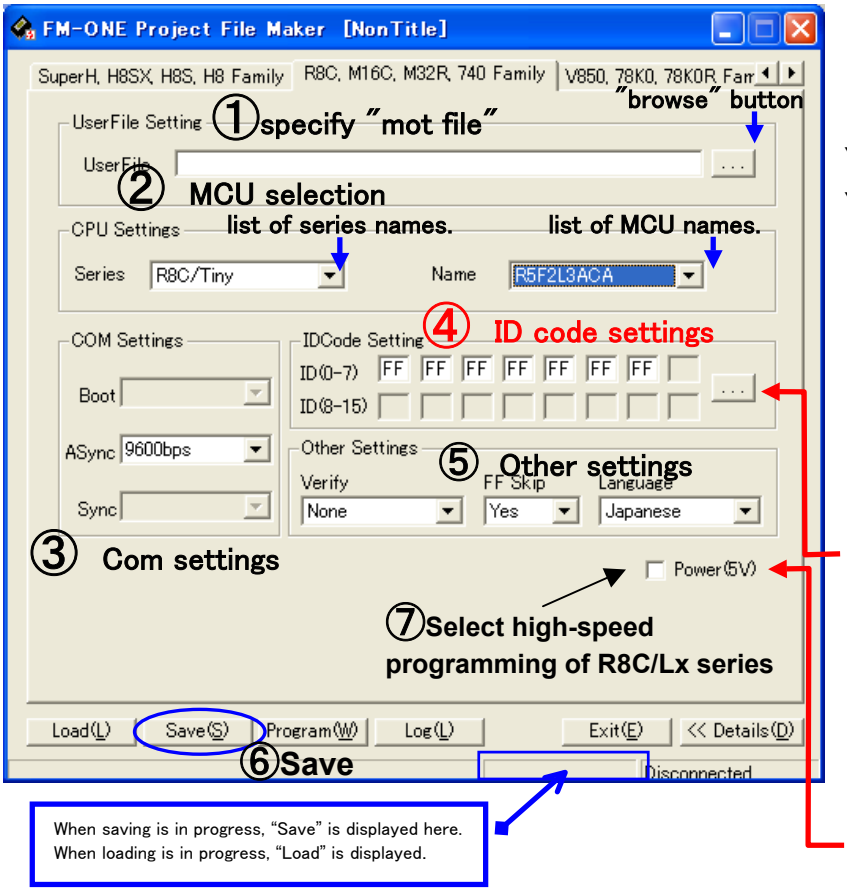
＊Note: Save key is valid only when MCU is selected.
Please do Unplug or Eject Hardware when take off a USB cable and writing in offline mode.

The project file is saved, which can be confirmed by loading the project file.
Click on Load key, and a screen display of file selection will be displayed.
Click on the saved file from the screen in a file selection mode.
It is possible to modify the loaded project if needed, to save again, as well as resume writing in the previous setup.

★1 The file name must be less than 8 characters.
The hierarchy of the directory has to be with in one.

▶Operating tab for R8C, M16C, M32R, 740 families.

Please choose "R8C, M16C, M32R, 740 family" tab to program R8C, M16C, M32R, 740.
Boot settings are not needed. but an ID code has to be set in necessary.
Please refer to "IDcode" in hardware manual of each MCU for details.



①Selection of User Program

Select the prepared MOT/HEX file.
Click on the screen display button of file selection and then select from among files displayed on Windows.

▼ Those selected files are converted into one project file and saved in a single HDP file.
▼ If selected files include an write-in address to an area other than on-chip ROM area good for the boot mode, a warning will appear.

②MCU Selection

Select the target MCU from among type names.
Make selection through two stages: from the group selection list to type name list.

▼ MCU on the list is a type name which can be available at the moment. New MCU is now under preparation. For further information, contact us.

③Selection of Transmission Rate★2

Select a transmission rate between FM−ONE and Target MCU from among the pull-down list.

④ID code settings

"FF" is shown in each edit box on choosing MCU name.
The number of enabled boxes is up to MCU which is chosen.

⑤Other settings

Please refer to ⑤ of page 9 for the details.

⑥Click on SAVE key

Please refer to ⑥ of page 9 for the details.

⑦Select high-speed programming of R8C/3x★3,R8C/Lx series

When the voltage is 4.5V～5.5V, the programming speed goes up (please check the box).

★2
Boot…This rate is to be used by combining the target MCU at the time of Start writing. This setting is unnecessary for R8C, M16C, M32R, 740 Family.

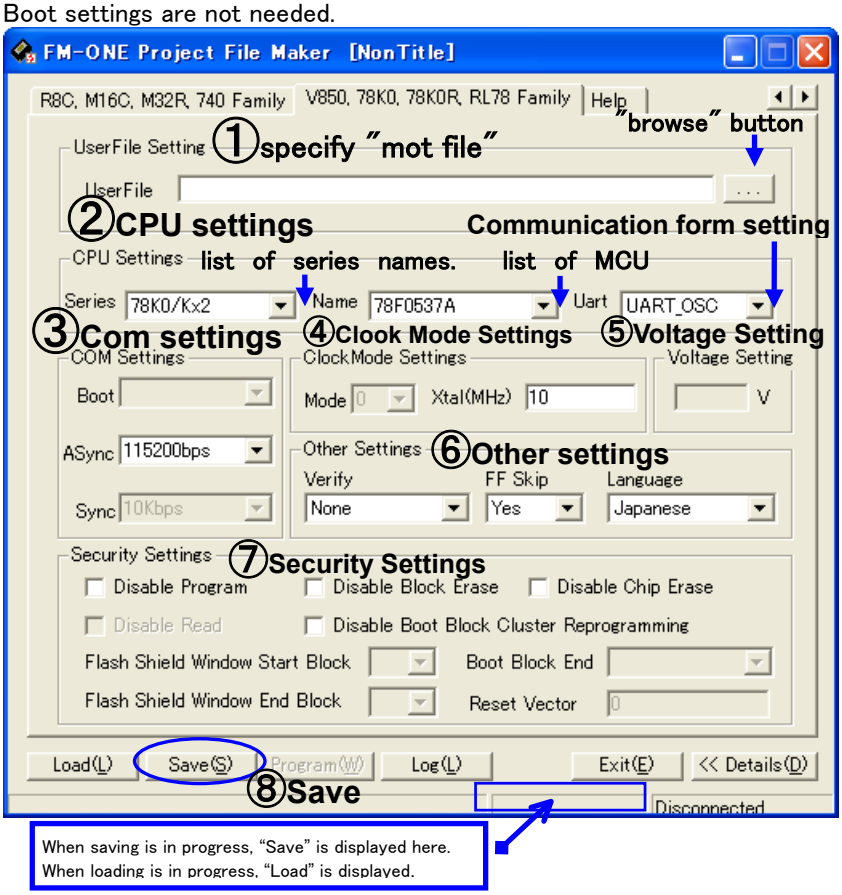
Async…This is a rate of an asynchronous communication method when user program data are transmitted. Select a rate with a smaller serial communications error rate by Target Clock.
▼Setting value:9600bps 19200bps 38400bps 250Kbps 500Kbps 1Mbps

Sync…This is a rate of a clock synchronized communication method, which is used when the user program data are transmitted. To use this rate, SCK signal must be connected to the Target Interface #19.
▼Setting value: NONE (No need when unnecessary) 10K, 25K, 50k, 100K, 500K, 1M, 2M

★3 MCU of R8C/32A, 33A, and 35A(354A,355A,356A) can't be used.

Operating tab for V850, 78K0, 78K0R, RL78 families.

Please choose "V850, 78K0, 78K0R, RL78 family" tab to program V850, 78K0, 78K0R, RL78 them.
Boot settings are not needed.



①Selection of User Program

Select the prepared MOT/HEX file.
Click on the screen display button of file selection and then select from among files displayed on Windows.

▼ Those selected files are converted into one project file and saved in a single HDP file.
▼ If selected files include an write-in address to an area other than on-chip ROM area good for the boot mode, a warning will appear.

②CPU Settings

Select the target MCU from among type names.
Make selection through three stages: Series →MCU name → Uart★4.

▼ MCU on the list is a type name which can be available at the moment. New MCU is now under preparation. For further information, contact us.

③Selection of Transmission Rate★5

Select a transmission rate between FM－ONE and Target MCU from among the pull-down list.

④Clook Mode Settings

Please input the target's clock mode and frequency.
Mode…Clock Mode (Select from the pull-down list)
Xtal…Target Clock All MCU is indispensable.
(When saved in HDP, the frequency is rounded off to one decimal place.)

⑤Voltage Setting

Please input the voltage when selecting RL78 family.
(e.g.) 2.5 (e.g.) 5.0

⑥Other settings

Please refer to ⑤ of page 9 for the details.

⑦Security Settings ★6

Reprogramming from the others can be controlled.
Disable Program
Disable Block Erase
Disable Chip Erase
Disable Read
Disable Boot Block Cluster Reprogramming
Flash Shield Window function
Flash Shield Window Start Block
Flash Shield Window End Block
Please select start block and End block to set the window range when selecting RL78 family.

⑧Click on SAVE key

Please refer to ⑥ of page 9 for the details.

★4 Communication form is different in the series of MCU.
Please choose the optional communication form fitted to each series.

Uart	Meaning
UARTx	Serial communication by UART.
CSIBx+HS	Serial communication by CSIB+HS(Handshake).
UART_OSC	Serial communication by UART (Uses X1 clock).
UART_FMCLK	Serial communication by UART(Uses the clock of "20-16pin 78K0" which is sold separately).
CSIx	Serial communication by CSI.
TOOL0	Serial communication by single line UART.

x:An optional number

★5

Boot…This rate is to be used by combining the target MCU at the time of Start writing. This setting is unnecessary for V850, 78K0, 78K0R Family.

Async…This is a rate of an asynchronous communication method when user program data are transmitted. Select a rate with a smaller serial communications error rate by Target Clock.
▼ Setting value:9600bps 19200bps 31250bps 38400bps 76800bps 115200bps

Sync…This is a rate of a clock synchronized communication method, which is used when the user program data are transmitted. To use this rate, SCK signal must be connected to the Target Interface #7.
▼ Setting value: NONE (No need when unnecessary) 10K, 25K, 50k, 100K, 500K, 1M, 2M

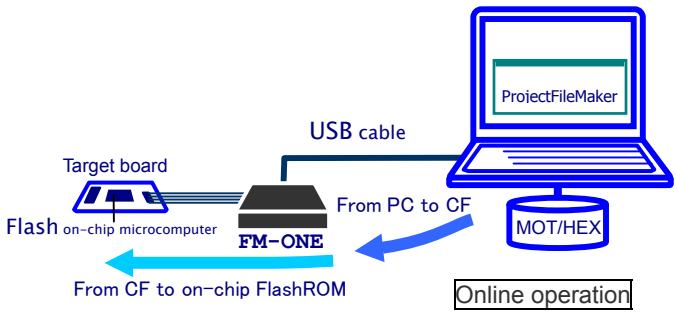
★6 Security Settings are cleared by Chip Erase except for "Disable Chip Erase" and "Disable Boot Block Cluster Reprogramming".
In FM-ONE, Chip Erase carried out automatically.

Note: About programming onto V850・78K0・78K0R series
An option board which fit each series is necessary. As for the details, please refer to the page 20, "About programming onto V850・78K0・78K0R series".

A2: Program

To start writing from FM－ONE Project File Maker, click on the Program key with File/Parameter in a selection mode.

To program, be sure to connect the main body, the USB cable and the target board as in the diagram on the right diagram.



There are actually two operational procedures as follows:

◆ Select the file and parameter as shown in the previous page, and click on **Program.**

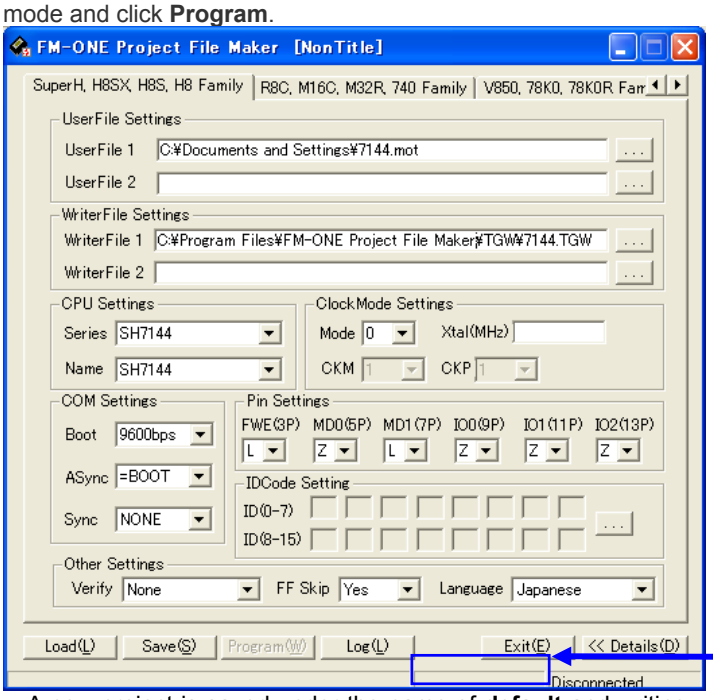
A new project, which is not saved yet, is automatically saved under the name of “Default” and writing is started.

◆Load the project file saved following the direction in the previous page, and then click on **Program.**

An existing project file, which has been saved before, is automatically saved (overwritten) in the CD under its original name and then writing is started.

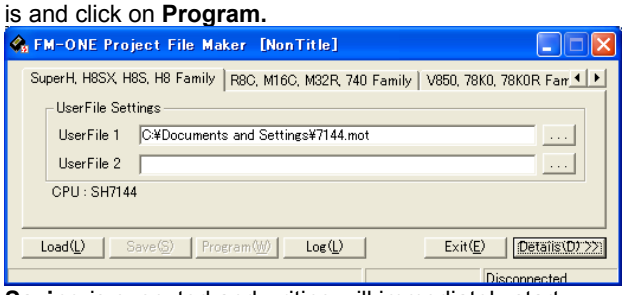
Likewise in the previous page, start FM－ONE Project File Maker.

When a new project is set up, or when the existing program is loaded to resume writing in it, configure your computer in DETAILS mode and click **Program**.



A new project is saved under the name of **default** and writing is started, while an existing project is **SAVED** under the original name and likewise writing is started.

When the existing project is loaded and written in without modifying, load the project leaving the screen below as it is and click on **Program.**



Saving is executed and writing will immediately start.

※ **Program key** is valid only when MCU is selected and FM－ONE is connected.

When **Program** isbeing executed, **“Program”** is displayed here.

Writing started, to an offline mode

Automatically reset to ONLINE

Completion of writing

When writing is properly completed, a message to the effect is displayed on the PC window. Log.txt indicating successful completion is produced in the project file.

Error occurrence

An error message is displayed on the PC screen. Errors are produced in the project file as log.txt.

A3: Log

- Program Log function working with “Program” button

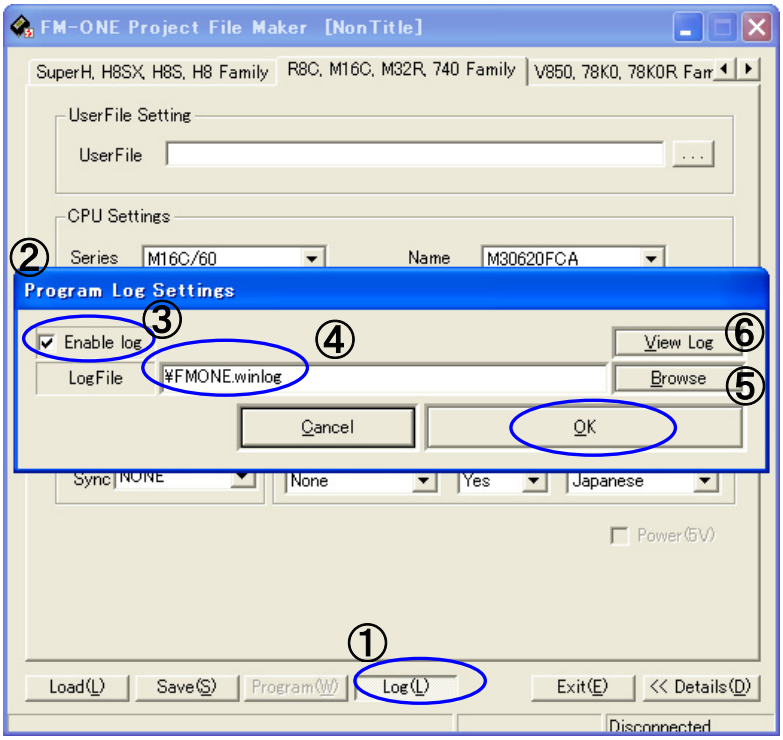
“Program” button enables you to write program onto your target flash memory directly. This function records a log file after the programming.

This function is disabled as a default setting. “Enable log” check box should be checked and OK has to be pressed in order to use this log function for the first time.

Once this is enabled. You do not need to setup again from the next use.

Press “View Log” button to open log file on notepad.

Please be sure the appropriate file path for log file should be specified to use.



①Please click ″Log″ button to open setting dialog ″Program Log Settings″.

②The log function is disabled as default setting. Please check ③ on to enable it.

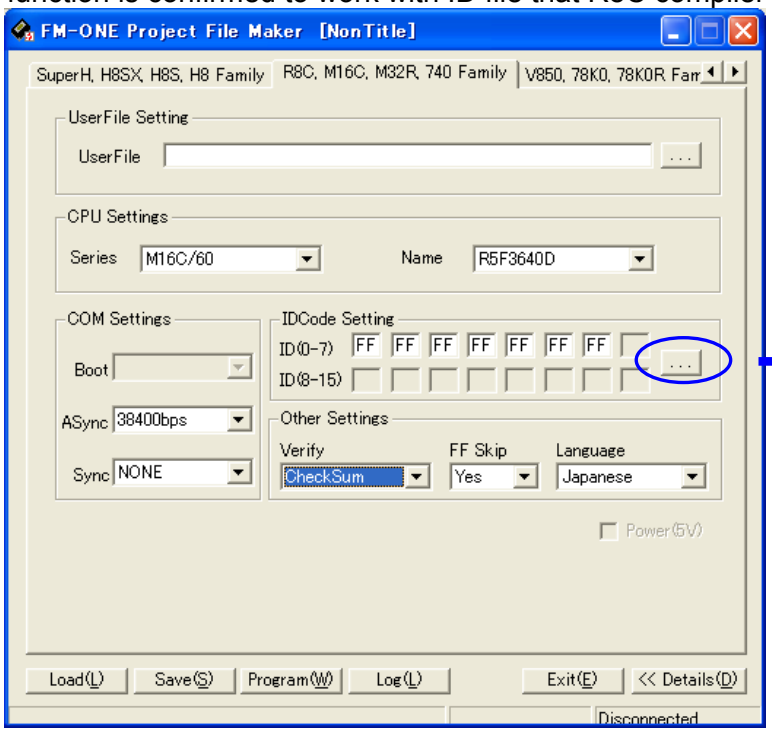
④Select the file you want to save the log into ⑤ Click “Browse” to select one.

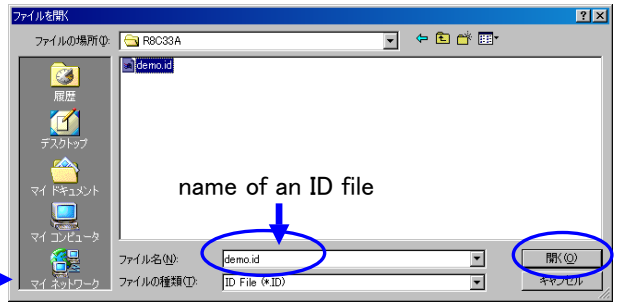
⑥Please click ″View Log″ button to open log file.

- ID file that compiler makes is available for R8C,M16C,M32R,740 families.

You can specify each protect ID to fill each box. And you can fill them at once with loading ID file that a compiler makes.

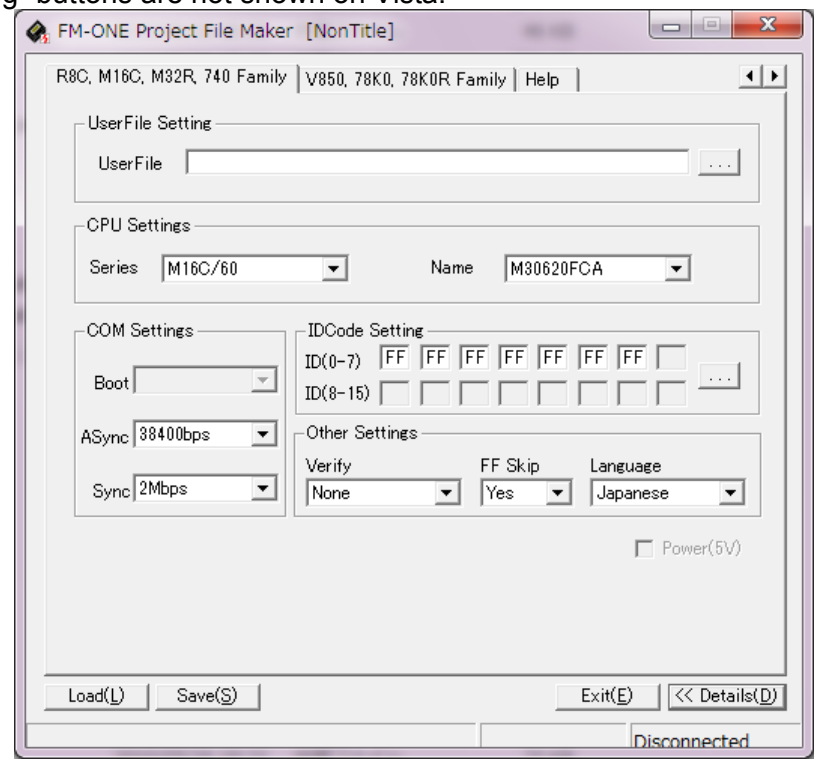
The format of ID file is not defined. Therefore there may be some ID file that cannot be read. This function is confirmed to work with ID file that R8C compiler makes.





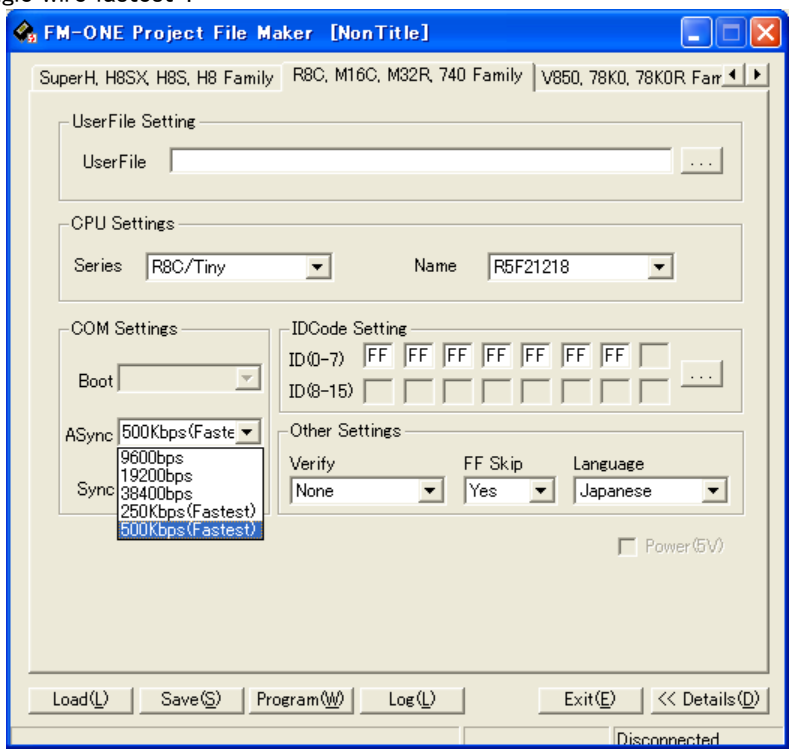
Please specify a name of an ID file that was made by compiler and press ″Open″ button to activate ID settings.

- Using on Windows Vista and Windows 7.
  Not the all functions of this product cannot be available on Windows Vista.
  But “Save” and “Load” functions are available on Windows Vista.
  You can make project files on Vista that enable this programmer to work as standalone.
  “Program” and “Log” buttons are not shown on Vista.



- Single wire programming at 1Mbps is supported
  Programming at 250Kbps and 1Mbps are available with 20P-14P-convert board named **”20-14pin R8C SINGLE WIRE FASTEST” ※**. The target MCU has to be able to be programmed on single wire.
  Please be sure that “Checksum” function as verify is not available on this programming way. So if you choose this way when “Checksum” has been selected, “Byte” is automatically selected as verify.

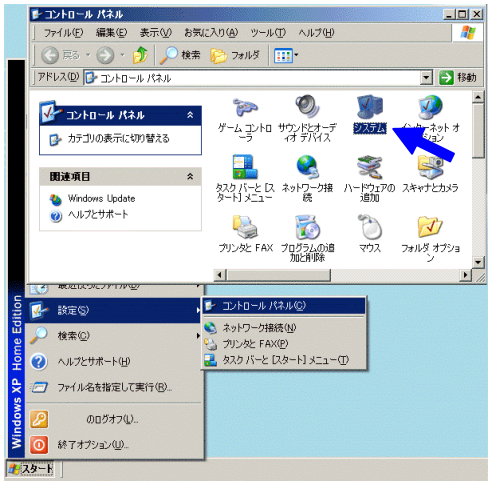
※Please refer to ″ About programming onto R8C･M16C･M32R series ″ and ″ Purchase of expendable supplies ″ for detail about ″20-14pin R8C single wire fastest″.



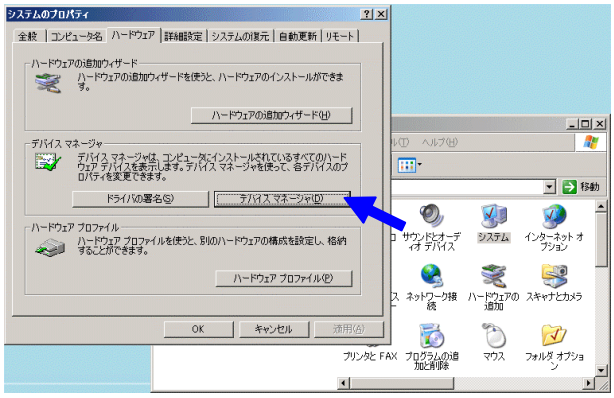
●Setting of Disk Cache.(WindowsXP)

This setting enables it to be quicker to transfer data into compact flash after pressing "Program" button.
("Safety device removing" has to be operated correctly on this setting without fail.)

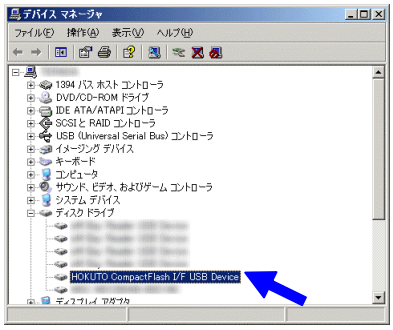
1. This should be set at "DeviceManager" dialog. Open "ControlPanel" and press "System"



2. Choose hardware tab and click "DeviceManager"

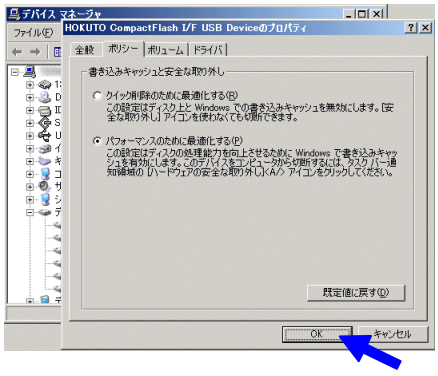


3. Please find "HOKUTO CompactFlash I/F USB Device". It is under "disk drive".



4. Click "Policy" tab and choose down side of radio button and click "OK" button.

That is all to setup.



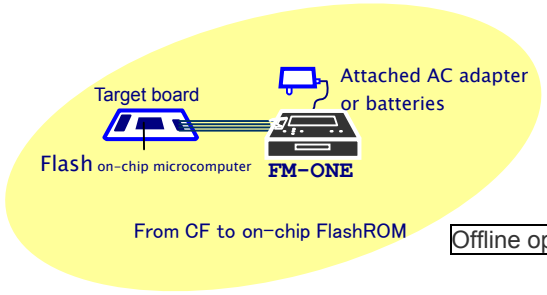
With the switch on FM-ONE【Offline】

How to write in using the switch on the FM－ONE body. Instead of connecting to the PC, writing in is done with the switch on the body (Offline operation). As it can operate with batteries, it has a wider advantage, for example, maintenance is possible in the field or it is used for evaluation at the client's office.

B : Write switch (OK)

【Connection】

To write in, the equipment must be connected as a diagram describes on the right. If the body is not connected to PC, power cannot be supplied from the USB bus. Prepare the attached AC adapter or specified batteries. To start writing in, the target must also be supplied with power.



【advance preparation of a project file】

To make write in, the project file must be stored in advance in the CF put in the body.

【Writing procedure】

① Connect the FM－ONE body with CF inserted in to the target board, and power should be supplied with first the body and next the target board.

② The startup screen on the right (result of self-test) is shown on the LCD of the FM－ONE body for about three seconds.

③ If self-test is done properly, one of the project files saved in the CF will be immediately displayed.

FM-ONE	System 2.4V
Folder	DEF
Date	05/01/01
Time	00:00:00

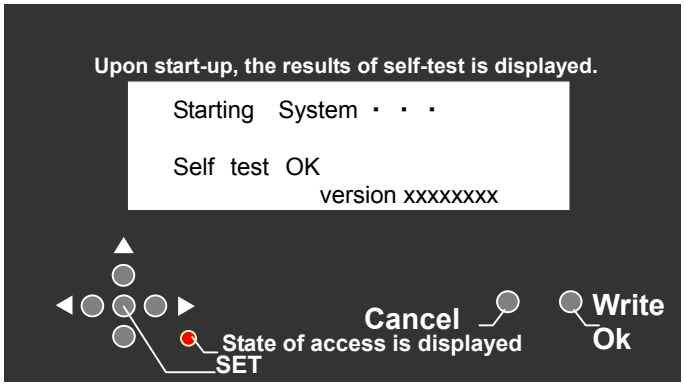
When another project is to be selected, display the desired project by using ↑ ↓ up-down keys.

④ Start writing by pushing **Write** button.

⑤ Completion of writing is displayed as follows:

FM-ONE	System 2.4V
user1	sum=00000000
user2	sum=00000000
Complete	

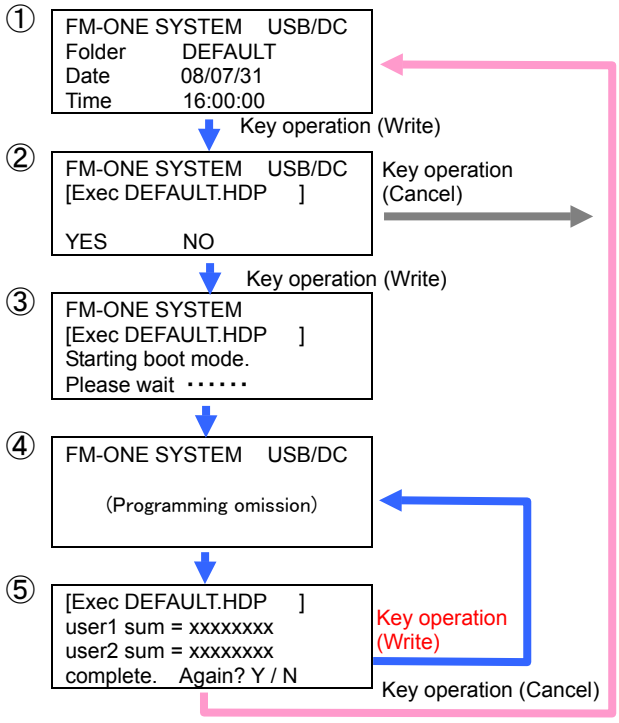
Programming is continued by push the Write button. In ending programming, please push the Write button after cancel button or N is selected.



Alteration of Parameter of the saved project.

①Display the project to be altered and push the SET button.
②Alter the items by pushing ↑ ↓ keys, and select the desired item from among items by pushing → ← keys, and alter the set value by the ↑ ↓ keys.
③Determine the content by pushing Write/OK button, and then reset form the altered screen. (Access display lights once.)
If Cancel button is pushed instead of Write/OK, the set value is not altered and resets.

【The follow of programming】 ※Screen display when AC adapter is used.



The programming after the second by off-line changed as shown in left figure.

Because the small file is taken into the memory at the programming, Verify and Retry become high-speed.

former flow

Parameters to be displayed ※ For detailed set values, refer to A1.

Page	Items	Set values
Communication setting	BOOT Async Sync	1200/2400/4800/9600/19200 1200/2400/4800/9600/19200/38400/76800*1 NONE/10K/25K/50K/100K/250K/500K/1M/2M
Pin setting & Option	Pin Vrify FFskip	FWE/MD0/MD1/IO0/IO1/IO2 NONE/CSUM/BYTE YES/NO
Clock & Clock mode/CKM	CLK MODE XTAL CKM	（Value displayed when CF saved） Alter by up-down button*2 （Value displayed when CF saved） Alter by up-down button*2 （Value displayed when CF saved） Alter by up-down button*2
CKP & Program names display	CKP USER 1 USER 2	(Value displayed when CF saved) Alter by up-down button HDU file displayed Alter by up-down button HDU file displayed Alter by up-down button
MCU type & laubguage	MCU LANGUAGE	(Selection displayed when CF saved) Cannot select. (Selection displayed when CF saved) Alter by up-down button.

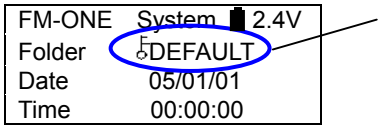
*1 Set values more than selected rate are displayed. *2 Alteration is not possible by MCU.

CAUTION!

- **◆Project is displayed under the folder name. Note that if the wrong HDP file name is entered in the folder, confirmation is not possible.**
- **◆Don't take out CF when Access lamp is on as saved data may be destroyed.**
- **◆Don't use the converted user's file HDU on other MCU as ROM areas cannot be confirmed.**

CAUTION!

- **◆If CANCEL button is pushed three times consecutively on the Project selection screen, functions other than Write and Cancel are blocked.**



A key symbol before a letter tells that switch operation is blocked.
To unlock, push CANCEL button three times.

This is a display of the body when blocked.

Specific MCU

How to write in external memory of ROMless articles

Writing is possible to external Flash ROM extended on the following ROMless MCU.

Corresponding MCU	H8SX/1650, H8SX/1651 or equivalents
Standard external ROM	MBM29LV800BA-70 （Fujitsu） *TC58FVM5T2AFT-65(TOSHIBA),S29GL032M90TFIR4（SPANSION） finished the confirmation
Writing method	Normal writing is possible.

- ◆ Writing control program to external memory differs depending on external memories to be use.
- ◆ Contact us as needed on how to convert protocols different from the standard source, and we will explain according to the specification.
- ◆ For the target interface, refer to H8SX/1650 Material edition of User's Manual.

What cannot be done with a special MCU.

- ◆Writing in H8/3664N Stack EEPROM varies depending on an external memory to be used.

  *If writing is not done in Stack EEPROM, you can make FF skip.
  FM－ONE dose not delete Stack EEPROM. FF skip is chosen, FF area remains the previous data, resulting in a verify error.

- ◆When entering values into the target clock in H8S/2172F, enter the twice as the values of the populated clock. Writing is not possible thorough clock synchronized communication.

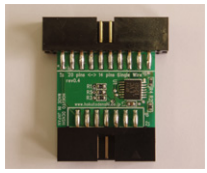
About programming onto R8C・M16C・M32R・R32C series

It's possible to program onto devices(shown as below)with an optional conversion unit.

Format…MOT/HEX

new elements will be added.

【Outlines of each unit】 (R8C/M16C Series,R8C Series)

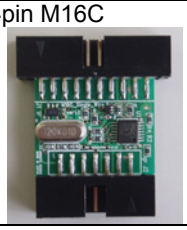
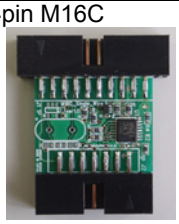
Cable Name	**20-10pin FOUSB**	**20-14pin R8C***1	**20-14pin R8C SINGLEWIRE FASTEST***2
Conversion unit	20<->10pin FOUSB	20<->14pin R8C	20<->14pin R8C SINGLE WIRE 
Included	10pins straight cable is attached	14pins straight cable is attached	14pins straight cable is attached
Specification	Connecting to USB Writer and M16C Flash Starter*3	Connecting to Emulator E8a *4	Connecting to Emulator E8a *4 Writing with single wire serial
Group of supported MCU	R8C/10～13, R8C/18,19,1A,1B R8C/20～29 R8C/2A,2B,2C,2D R8C/2E,2F,2K,2L R8C/32A,32C,32D,32G,32H R8C/32M,33A,33C,33D,33G R8C/33H,33M,33T,34C,34E R8C/34F,34G,34H,34K,34M R8C/34P,34R,34U,34W,34X R8C/34Y,34Z,35A,35C R8C/35D,35M,36A,36E,36F R8C/36G,36H,36M,36W,36X R8C/36Y,36Z,38A,38C R8C/38E,38F,38G,38H,38M R8C/38W,38X,38Y,38Z R8C/3GA,3GC,3GD R8C/3JA,3JC,3JT R8C/3MK,3MU,3MQ R8C/36T-A R8C/54E,54F,54G,54H R8C/56E,56F,56G,56H R8C/L35A,L35B,L35C,L35M R8C/L36A,L36B,L36C,L36M R8C/L38A,L38B,L38C,L38M R8C/L3AA,L3AB,L3AC,L3AM R8C/LA3A,LA5A,LA6A,LA8A R8C/LAPS R8C/M11A,M12A,M13B M16C/26,26A,28,29,1N M16C/30P,57,5M,5L M16C/62P,62A,62N,62M M16C/63,64,64A,65 M32C/83,84,85,86,87 R32C/111,116,118,120,121 R32C/152,153,156	R8C/10～13	R8C/14～19,1A,1B R8C/20～29 R8C/2A,2B,2C,2D,2H,2J R8C/2E,2F,2K,2L R8C/32A,32C,32D,32G,32H, R8C/32M,33A,33C,33D,33G, R8C/33H,33M,33T,34C,34E R8C/34F,34G,34H,34K,34M R8C/34P,34R,34U,34W,34X R8C/34Y,34Z,35A,35C R8C/35D,35M,36A,36C,36E R8C/36F,36G,36H,36M,36W R8C/36X,36Y,36Z,38A R8C/38C,38E,38F,38G R8C/38H,38M,38W,38X,38Y R8C/38Z R8C/3GA,3GC,3GD R8C/3JA,3JC,3JT R8C/3MK,3MU,3MQ R8C/36T-A R8C/54E,54F,54G,54H R8C/56E,56F,56G,56H R8C/L35A,L35B,L35C,L35M R8C/L36A,L36B,L36C,L36M R8C/L38A,L38B,L38C,L38M R8C/L3AA,L3AB,L3AC,L3AM R8C/ LA3A,LA5A,LA6A,LA8A R8C/LAPS R8C/M11A,M12A,M13B
Price	¥2,000	¥2,000	¥5,000

Notes:

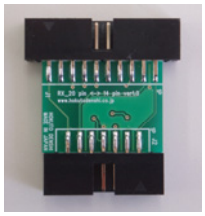
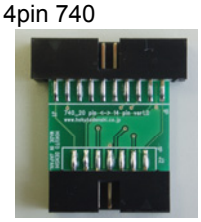
*1 Please output TX and RX to program.
*2 Project File Maker needs to be newer than 1.0.0.4.
Verify-checksum is not available with single wire connection.
*3 Please refer to MCU hardware manual for examples of connection Serial Programmer and MCU.
*4 Please refer to "E8a Emulator user's manual" for this pin assign.

Please use programming tools with appropriate version of control software.
Please refer to the instruction manual for each connection on the target board.

【Outlines of each unit】（M16C Series）

Cable Name	**20-14pin M16C**	**20-14pin M16C SINGLEWIRE AS***2	**20-14pin M16C SINGLEWIRE BS***2
Conversion unit	20<->14pin M16C	20<->14pin M16C 	20<->14pin M16C 
Included	14pins straight cable is attached	14pins straight cable is attached	14pins straight cable is attached
Specification	Connecting to Emulator E8a*4	Connecting to Emulator E8a*4 Writing with asynchronous communication.(single wire)	Connecting to Emulator E8a*4 Writing with synchronous communication.(single wire)
Group of supported MCU	M16C/26,26A,28,29,1N M16C/30P,57,5M,5L M16C/62P,62A,62N,62M M16C/63,64,64A,65 M32C/83,84,85,86,87	M16C/63,64,64A,57,5M,5L,65	M16C/63,64,64A,57,5M,5L,65
Price	¥2,000	¥5,000	¥5,000

【Outlines of each unit】（RX, 740 Series）

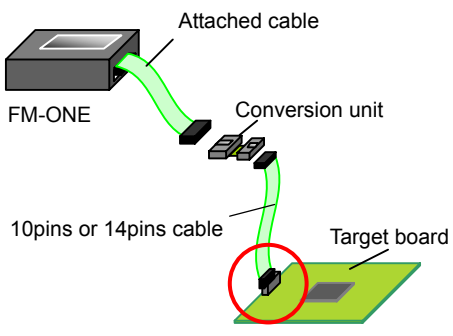
Cable Name	**20-14pin RX**	**20-14pin 740**
Conversion unit	20<->14pin RX 	20<->14pin 740 
Included	14pins straight cable is attached	14pins straight cable is attached
Specification	Connecting to Emulator E1 and E20*5	Connecting to Emulator E8a *4
Group of supported MCU	RX111 RX210,21A,220 RX621,62N,62T,62G RX630,631,63T	740/3803,38D5
Price	¥2,000	¥2,000

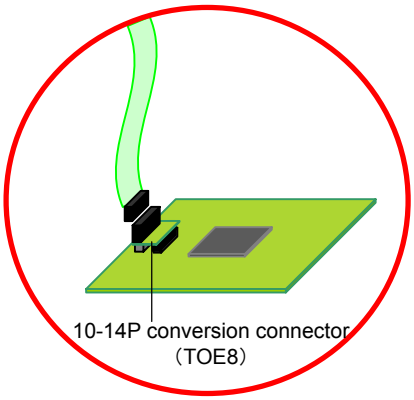
Notes:

*2 Project File Maker needs to be newer than 1.0.0.4.
Verify-checksum is not available with single wire connection.
*4 Please refer to “E8a Emulator user’s manual” for this pin assign.
*5 Please refer to “E1 Emulator user’s manual” or “E20 Emulator user’s manual” for this pin assign.

Please use programming tools with appropriate version of control software.
Please refer to the instruction manual for each connection on the target board.

how to connect





Some of the boards needs attached
10-14P conversion connector.

About programming onto V850・78K0・78K0R・RL78 series

It's possible to program onto devices(shown as below)with an optional conversion unit.
In connecting with the recommendation circuit of each series, the following conversion units are necessary.

Format…MOT/HEX

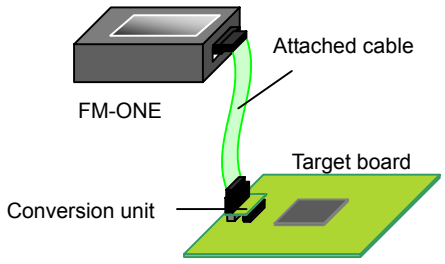
new elements will be added.

【Outlines of each unit】(V850,78KO,78K0R,RL78Series)

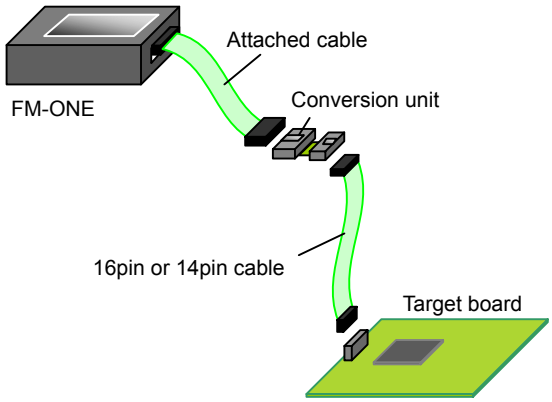
Cable Name	**20-16pin V850**	**20-16pin 78K0**	**20-16pin 78K0R SINGLE WIRE**	**20-14pin RL78 SINGLE WIRE**
Conversion unit	20<->16pin V850	20<->16pin 78K0	20<->16pin 78K0R SINGLE WIRE	20<->14pin RL78 SINGLE WIRE
Included	—	16pins straight cable is attached	16pins straight cable is attached	14pins straight cable is attached
Usage	-	-	Connecting to QB-MINI2 connector *1	Connecting to E1 or E20 emulator *2
Group of supported MCU	V850ES/Jx2,Jx3-L V850E/Ix3 V850E2/Mx4,Sx4-H	78K0/Kx2	78K0R/Kx3 V850E2/Mx4,Sx4-H	RL78/G10, G12,G13,G14,G1A,G1C RL78/I1A RL78/L12,L13
Price	¥2,000	¥5,000	¥5,000	¥5,000

*1 Please refer to "QB-MINI2 user's manual" for this pin assignment to each MCU.
*2 Please refer to "E1 emulator user's manual" or "E20 user's manual" for this pin assignament for each MCU.

how to connect （conversion unit only）



how to connect （with 16pin or 14pin straight cable）



Before using RL78 family MCU

If the setting prohibited number is set at the option byte (000C2H), programming would be failed.
Please try again if failed.

Troubleshooting

Items to be confirmed at errors

State of Cable & Power supply

While operating, there may be a loose connection or breaking, so confirm if the cable is properly connected. Also, when the FM-ONE body is turned OFF, or some trouble occurs while operation in MCU, make sure that power is properly supplied to the body and the board. In particular, when using the system with batteries, be sure to replace with new ones in case they drain. Maximum length of the attachment of the target table is 30cm and if it is too long, it may result in a harmful effect.

Setting of transmission rate

Transmission rate varies depending on the target board clock. For the transmission rates, refer to the ROM chapter of the Hardware Manual. Transmission by the writing control program, or User program with a built-in ROM deleted, the maximum transmission rate must be set considering the serial communication error rate. The communication error rate should be adjusted by changing the combinations of rates. (For selectable rates, refer to the Bit rate register section of the Serial Communication chapter, the Hardware Manual.)

Various types of setting

Confirm how MCU selection and Pin setting are done. When this system is used by reinstalling or in a different environment, the pin setting may remain the default value and the boot mode does not start readily. For detailed pin setting, refer to the Boot mode timing chart section.

State of MCU

The more the frequency of writing becomes, the more frequency of delete and retry of program writing becomes, and consequently time required for writing is longer. When a socket is applied to the target, be sure that there is no loose connection.

Target circuit

On the assumption of Open Collector drive, RESET is output from FM-ONE. A delayed or slow output causes a startup error. The description of the main body and points to remember of the reference circuit diagram are shown in the beginning of the User's guide of the User's Manual. Read them when examining output waveform.

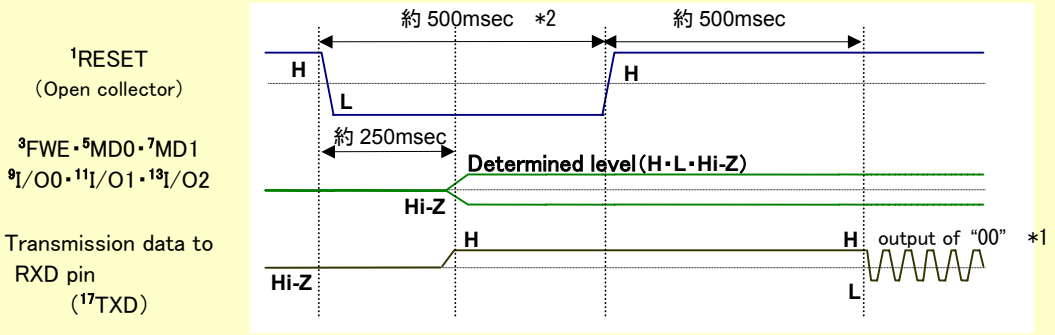
Programs

Make sure whether reduplicated addresses are in the MOT/HEX file or not, or writing is designated at any area other than built-in ROM area. Bear in mind that file extension is possible only on .MOT/HEX file and make sure file formats as well.

Timing Chart

Timing chart of pins connected to the target interface is as follows:

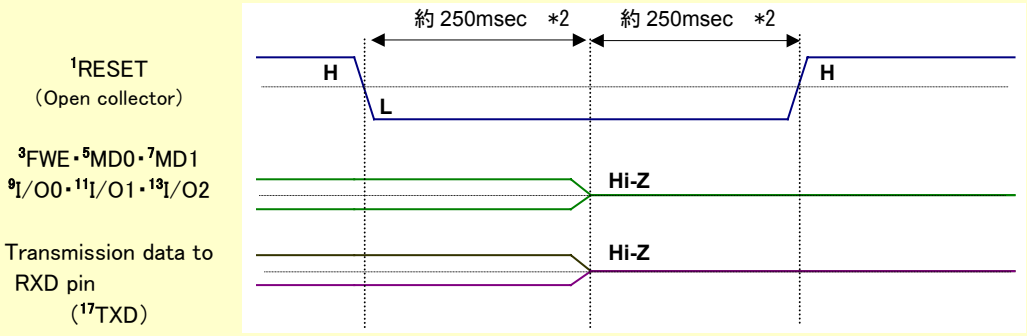
On start-up in Boot mode



＊1･･･ Maximum frequency of "00" output is 512 times and continue transmitting until a reply from the target([15]RXD)
Even "00" output is done 512 times when there is no reply, an error occurs.

＊2･･･ Only R8C Tiny series MCU is 100msec.

Boot mode ends



＊2･･･ Only R8C Tiny series MCU is 100msec.

◆Don't select the same MOT/HEX file in the normal area file and secondary area file.
If the same name is used, even another file, HDU file is overwritten when the original file, HDU format is converted (If this mistake is made, our FM-ONE Project File Maker issues a warning message).

◆As many as 10 file folders in the CF can be perceived by FM-ONE.

- If more than 10 file folders are in the CF root, FM-ONE will detected 10 files voluntarily and display them on LCD screen. The order of display cannot be designated.
- Files other than the project can be placed in the CF, it is recommended that such files be packed into a single folder to avoid trouble of confirming unnecessary files as circumstances permit.
- When files other than the project are placed in the CF, we don't recommend that too many files be not placed as file checking is troublesome.(Unless the folder is selected as a project, file checking is not done inside. If that folder is selected by mistake, we will not guarantee.

◆Project is displayed under the folder name. Make sure that files with different names are not put in the folder as it cannot be confirmed.

◆While the access lamp is on, never take out the CF as saved data may be destroyed.

◆If CANCEL button is pushed three times consecutively of the Project selection screen, functions other than Write and Cancel are locked.

◆Don't use the converted user File HDU on another MCU because ROM areas cannot be confirmed.

Errors while writing

ターゲットカラノデンゲンガニュウリョクサレテイマセン	No power supply from target	Input VCC to 20pin of target I/F
ビットレートチョウセイシュウリョウノ00ガジュシンデキマセン	No 00 replyed from target at rate adjust	Possibly, incorrect pin setting or too quick a communication rate during boot start-up. Confirm the pin setting and communication rate as well.
55ソウシンゴノAAガジュシンデキマセン	No AA replyed from target after 55 sent	An adjustment error. Confirm the pin setting and communication rates.
55ソウシンゴニAAイガイガジュシンサレマシタ	Instead of AA other reply backed for 55	
イレースニシッパイシマシタ	Failed at erasing flash memory	Possibly, due to wrong MCU selection, or MCU built-in FLASH memory is broken. Reconfirm selected MCU model name.
TGPガドウサシテイマセン	Correct response did not back from TGP	
TGPガイジョウデス	Wrong reply was received from TGP	
シリアルノセッテイニシッパイシマシタ	Failed at serial communication parameter	Possibly, incorrect pin setting or too quick a communication rate during boot start-up. Confirm the pin setting and communication rate as well.
55ソウシンゴノE6ガジュシンデキマセン	E6 did not back as reply for 55	
55ソンシンゴニE6イガイガジュシンサレマシタ	Wrong reply backed to E6 after sending 55	
ニュウリョクサレタビットレートガセンタクデキマセン	Input value for bitrate is wrong to use	Possibly, too quick a maximum asynchronous communication rate.Confirm the above rate.
ビットレートセッテイゴノACKガジュシンデキマセン	Failed to get recept for bitrate setting	
ブートモードキドウジニRXDタンシガLOWノママデシタ	RXD port stays low in bootmode starting	Possibly, communication pin is not connected properly in the circuit. Confirm connection.
ブートモードキドウジニRXDタンシガHIGHノママデシタ	RXD port stays high in bootmode starting	
TGWカキコミアドレスガセッテイデキマセン	Failed to set programming address of TGW	Possibly, too quick amaximum asynchronous communication rate/a synchronous communication rate.Confirm the above rates.
カキコミエラーガハッセイシマシタ	Programming error occured	Please reconfirm connection and setting contents.
ビットレートセンタクゴノカクニンコードガジュシンデキマセン	Confirmation code cannot be received	
バイトベリフェイエラーデス	Disagreement found in verifying	

Other errors

Please format a card	Resulting from other than FAT12/16/other errors	Possibly due to broken file, inappropriate format or broken CF. Try to recover by checking disk, save or format again. Don't select FAT32 when formatting CF.
File system error	Resulting from obtaining a file (folder) list from the Root	File may be broken, inappropriate format, or CF broken. Try to recover by checking disk, save or format again.
Please insert a card	Card not inserted	Insert CF of FAT12/FAT16 into the body.
Can't open INI file	With formatted CF, a file is not found to save system setting, or other errors	Can move forward by pushing either button. When writing, modifying set-up, or making keylock, a file to save system setting is produced, and no error message occurs from then on. There are maybe damaged files, inappropriate format, or broken CF. Check the disk, save and format again.
INI put error	Can't load from a file to save system setting	Possibly due to damaged file, inappropriate format, or broken CF. Try to check the disk, save and format again.
INI get error	Can't write in a file to save system setting	
CURFILE not found	An early-selected file set in the system is not in the CF.	Can move forward by pushing either button. Writing or modifying set-up updates and improves files to save system setting.
Can't open HDP file	Project file absent, name of folder is different from that of project file, or other errors	Confirm file name. Possibly due to damaged file, inappropriate format, or broken CF. Try to check the disk, save and format again.
HDP get error	Can't load from project file.	Possibly due to damaged file, inappropriate format, or broken CF. Try to check the disk, save and format again.
Can't open HDH file	File of host program absent, or different one found other than host program setup in the project	Host program is found but error messages are displayed. Possibly due to damaged file, inappropriate format, or broken CF. Try to check the disk, save and format again.
HDH illegal version	Something is wrong with version information of host program	Possibly due to damaged file, inappropriate format, or broken CF. Try to check the disk, save and format again.
HDH get error	Can't load from file of host program	
HDH check sum error	When file of host program is loaded and sum is calculated, the sum is different from that of the file pin	
File not found	No file (folder) to write in is found.	Transmit data by USB connection, or save data by over-the-counter CF reader and then insert file into FM-ONE.
Self test NG	It is reported that the result of selftest is NG.	Please set the switch (for farmware update) to normal position and reconnect. note: please refer to page3 for details.

Correspondence MCU

Please refer to “The list of supported flash memory MCU” (PDF) recorded on the provided CD for what MCU FM-ONE supports.

Version upgrade method

Version upgrade as follows:

Version upgrade	Price	Remarks ※Serial number of the body confirmed when it was upgraded.
FM-ONE Version upgrade software	￥6,000	Windows2000, Windows XP(Professional/Home Edition) , Windows Vista, Windows 7 and Windows8.1 Japanese environment. ※ Contact us to use FM-ONE in another environment.

※Price is subject to change. For the latest information, visit our website.

Optional items

The followings are the optional items for FM-ONE.

Name	Price	Remarks
OE conversion cable(20⇒14P)	¥2,000	Conversion board for OE I/F write-in,14target cable.
20-10pin FoUSB	¥2,000	A conversion unit for R8C/M16C and a 10pins target cable.
20-14pin R8C	¥2,000	A conversion unit for R8C and a 14pins target cable.
20-14pin R8C SINGLE WIRE FASTEST	¥5,000	A conversion unit for R8C and a 14pins target cable. ※For single wire connection only.
20-14pin M16C	¥2,000	A conversion unit for R16C and a 14pins target cable.
20-14pin M16C SINGLE WIRE AS	¥5,000	A conversion unit for R16C and a 14pins target cable. ※For single wire connection only. Asynchronous communication.
20-14pin M16C SINGLE WIRE BS	¥5,000	A conversion unit for R16C and a 14pins target cable. ※For single wire connection only. Synchronous communication.
20-14pin RX	¥2,000	A conversion unit for RX and a 14pins target cable.
20-14pin 740	¥2,000	A conversion unit for 740 and a 14pins target cable.
20-14pin RL78 SINGLE WIRE	¥5,000	A conversion unit for RL78 and a 14pins target cable. ※For single wire connection only.
20-16pin V850	¥2,000	A conversion unit for V850.
20-16pin 78K0	¥5,000	A conversion unit for 78K0 and a 16pins target cable.
20-16pin 78K0R SINGLE WIRE	¥5,000	A Common conversion unit for 78K0R and RL78, and 16pins target cable. ※For single wire connection only.
20-16pin 78K0R SINGLE WIRE	¥5,000	A Common conversion unit for 78K0R and RL78, and 16pins target cable. ※For single wire connection only.

※Price is subject to change. For the latest information, visit our website.

Includes

These includes are purchasable.

Expendables supplies	Price	Remarks
AC adapter	¥2,500	The provided AC adapter is verified for Japanese domestic use only.
FM-ONE Target cable (20P) ※Applicable for both FLASHMATE5V1 and FLASH2	¥1,000	Free shipping for orders over 10 unites or more.
CD	¥6,000	Please purchase version up software.
CF card "CF115－1G" (made by I-O Data Device, Inc.)	¥5,000	Guarantees operation when using FM-ONE.

※Price is subject to change.　For the latest information, visit our website.

FM-ONE User's Manual

© 2005-2014 北斗電子 Printed in Japan First printing: January 19, 2005　REV.2.0.0.0（140411）

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